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VOL. XVIII. NO. 3.

FEB. 1, 1890.

PEACE • ON EARTH • GOD • WILL • FOR • THEM



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CLEANING  
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BEE CULTURE

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DEVOTED  
TO  
BEEKEEPING

& HOME INTERESTS.

MEDINA OHIO

BY  
A. BOOT



TERMS, ONE DOLLAR PER YEAR.

Mc FARRINGTON, DUNELLEN, N.Y.

ENTERED AT THE POSTOFFICE, MEDINA, OHIO, AS SECOND-CLASS MATTER.



## ADVERTISEMENTS.

We require that every advertiser satisfy us of responsibility and intention to do all that he agrees, and that his goods are really worth the price asked for them. Patent-medicine advertisements, and others of a like nature, can not be inserted at any price.

### Rates for Advertisements.

All advertisements will be inserted at the rate of 20 cents per line, Nonpareil space, each insertion; 12 lines of Nonpareil space make 1 inch. Discounts will be made as follows:

On 10 lines and upward, 3 insertions, 5 per cent; 6 insertions, 10 per cent; 9 insertions, 15 per cent; 12 insertions or more, 20 per cent; 24 insertions or more, 25 per cent.

On 48 lines (½ column) and upward, 1 insertion, 5 per cent; 3 insertions, 10 per cent; 6 insertions, 15 per cent; 9 insertions, 20 per cent; 12 insertions, or more, 25 per cent; 24 insertions or more, 33½ per cent.

On 96 lines (whole column) and upward, 1 insertion, 10 per cent; 3 insertions, 15 per cent; 6 insertions, 20 per cent; 9 insertions, 25 per cent; 12 insertions, or more, 33½ per cent; 24 insertions or more, 40 per cent.

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No additional discount for electrotpe advertisements.

A. I. Root.

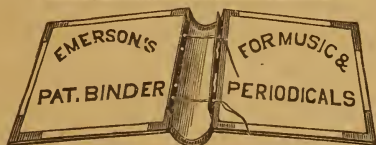
## CLUBBING LIST.

We will send GLEANINGS—		
With the American Bee-Journal, W'y	(\$1.00)	\$1.75
With the Canadian Bee Journal, W'y	(1.00)	1.75
With the Bee Hive,	(.30)	1.20
With the Bee-Keepers' Review,	(.50)	1.40
With the British Bee-Journal,	(1.50)	2.40
With all of the above journals,		6.40
With American Apiculturist,	(\$1.00)	1.70
With Bee-Keepers' Advance and Poultryman's Journal,	(.50)	1.45
With American Agriculturist,	(\$1.50)	2.25
With American Garden,	(2.00)	2.80
With Prairie Farmer,	(1.50)	2.35
With Rural New-Yorker,	(2.00)	2.90
With Farm Journal,	(.50)	1.20
With Scientific American,	(3.00)	3.75
With Ohio Farmer,	(1.00)	1.90
With Popular Gardening,	(1.00)	1.85
With U. S. Official Postal Guide,	(1.50)	2.25
With Sunday-School Times, weekly,	(1.50)	1.75
With Drainage and Farm Journal,	(1.00)	1.75
With Illustrated Home Journal,	(1.00)	1.75
With Orchard and Garden,	(.50)	1.40
With Cosmopolitan, (new sub. to Cos.)	(2.40)	2.40

[Above Rates include all Postage in U. S. and Canada.]

**BEE'S**  
16tdfb

SEND for a free sample copy of the BEE JOURNAL—16-page Weekly at \$1 a year—the oldest, largest and cheapest Weekly bee-paper. Address BEE JOURNAL, Chicago, Ill.



You can not look over the back No's of GLEANINGS, or any other periodical with satisfaction, unless they are in some kind of a binder. Who has not said—"Dear me, what a bother—I must have last month's Journal and it is nowhere to be found?" Put each No. in the Emerson binder as soon as it comes, and you can sit down happy, any time you wish to find anything you may have previously seen, even though it were months ago.

Binders for GLEANINGS (will hold them for one year) gilt lettered, for 60 cts.; by mail, 12 cts. extra. Ten, \$5.00; 100, \$45.00. Table of prices of binders for any periodical, mailed on application. Send in your orders.

A. I. ROOT, Medina, Ohio.

Names of responsible parties will be inserted in any of the following departments, at a uniform price of 20 cents each insertion, or \$2.00 per annum, when given once a month, or \$4.00 per year if given in every issue.

## Untested Queens

FOR \$1.00 FROM JULY 1ST TILL NOV. 1ST.

Names inserted in this department the first time without charge. After, 20c each insertion, or \$2.00 per year.

Those whose names appear below agree to furnish Italian queens for \$1.00 each, under the following conditions: No guarantee is to be assumed of purity, or anything of the kind, only that the queen be reared from a choice, pure mother, and had commenced to lay when they were shipped. They also agree to return the money at any time when customers become impatient of such delay as may be unavoidable.

Bear in mind, that he who sends the best queens, put up most neatly and most securely, will probably receive the most orders. Special rates for warranted and tested queens, furnished on application to any of the parties. Names with \*, use an imported queen-mother. If the queen arrives dead, notify us and we will send you another. Probably none will be sent for \$1.00 before July 1st, or after Nov. If wanted sooner, or later, see rates in price list.

\*A. I. Root, Medina, Ohio.

\*H. H. Brown, Light Street, Col. Co., Pa.

\*Paul L. Viallon, Bayou Goula, La.

\*S. F. Newman, Norwalk, Huron Co., O.

\*Jos. Byrne, Ward's Creek, East Baton Rouge

C. C. Vaughn, Columbia, Tenn.

Wm. L. Ashe, Edwardsville, Mad. Co., Ill.

J. M. Jenkins, Wetumpka, Ala.

\*Oliver Hoover & Co., Snyderdowntown, Northum-

Abbott L. Swinson, Goldsboro, Wayne Co., N. C.

C. R. Mitchell, Ocala, Marion Co., Fla.

E. Burke, Vincennes, Knox Co., Ind.

N. A. Knapp, Rochester, Lorain Co., O.

## Hive Manufacturers.

Who agree to make such hives, and at the prices named, as those described on our circular.

A. I. Root, Medina, Ohio.

P. L. Viallon, Bayou Goula, Iberville Par., La

C. W. Costellow, Waterboro, York Co., Me.

R. B. Leahy, Higginsville, Laf. Co., Mo.

J. M. Jenkins, Wetumpka, Ala.

W. T. Falconer Mfg. Co., Jamestown, N. Y.

## FLAT - BOTTOM COMB FOUNDATION.

High side-walls, 4 to 14 square feet to the pound. Circular and samples free.



J. VAN DEUSEN & SONS.

Sole Manufacturers,

SPROUT BROOK, MONT. CO., N. Y.

In responding to this advertisement mention GLEANINGS.

**MUTH'S**  
**HONEY-EXTRACTOR,**  
**SQUARE GLASS HONEY-JARS,**  
**TIN BUCKETS, BEE-HIVES,**  
**HONEY-SECTIONS, &c., &c.**  
**PERFECTION COLD-BLAST SMOKERS.**

Apply to CHAS. F. MUTH & SON,

CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." (Mention Gleanings.)

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## BEE-KEEPERS

Coming to Washington, D. C., will find pleasant rooms and board (by day or week) at special rates. Satisfaction guaranteed. Central location.

1301 K. St., N. W. 3tfdb F. DANZENBAKER.

In responding to this advertisement mention GLEANINGS.

# 1890

Early Italian queens from bees bred for business. Each \$1.00; six, \$4.50. Ready May 1st. Order now, pay when queen arrives. Satisfaction.

2-24db

W. H. LAWS,

Lavaca, Sebastian Co., Ark.

In responding to this advertisement mention GLEANINGS.

## Western Bee-Keepers' Supply House

Root's Goods can be had at Des Moines

Iowa, at Root's Prices.

The largest supply business

in the West. Established 1885

Dovetailed Hives, Sec-

tions, Foundation, Ex-

tractors, Smokers, Veils,

Crates, Feeders, Clover

Seeds, etc. Imported

Italian Queens. Queens and

Bees. Sample copy of our

Bee Journal, "The West-

ern Bee-keeper," and Latest

Catalogue mailed Free to Bee-keepers.

JOSEPH NYSEWANDER, DES MOINES, IOWA.

In responding to this advertisement mention GLEANINGS.

**For Sale.**—For cash, cheap, or trade for a good piece of land, from 50 to 200 colonies of Italian bees in the Quinby hive, and a few in Root's Simplicity. Too much work, with other business.

2tfdb G. HARSEIM, Secor, Woodford Co., Ills.

In responding to this advertisement mention GLEANINGS.

## FOR THE SEASON OF 1890.

Headquarters in the South.

TWELFTH ANNUAL CATALOGUE NOW READY.

A steam-factory exclusively for the manufacture of Bee-keepers' Supplies.

### ITALIAN QUEENS.

Tested, ready in March. Untested, by April 1st. Contracts taken with dealers for the delivery of a certain number of queens per week, at special figures.

### FOUR-FRAME NUCLEUS,

with pure Italian queen, containing 3 pounds of bees when secured, in April and May, \$4.00; after, 25 cts. less. Safe arrival and satisfaction guaranteed on all queens and nuclei.

For more particulars, send for Twelfth Annual Catalogue.

**P. L. VIALLOIN,**

Bayou Goula, Iberville Parish, La.

In responding to this advertisement mention GLEANINGS.

**HOME EMPLOYMENT.**—AGENTS wanted everywhere, for the HOME JOURNAL—a grand family paper at \$1 a year. Big cash premiums. Sample FREE. THOS. G. NEWMAN & SON, 923 & 925 West Madison Street, - CHICAGO, ILLS.

In responding to this advertisement mention GLEANINGS.

## NOW WE HAVE IT!

Bees made to hive themselves when they swarm. The simplest and most useful implement used in the apiary. Just the thing bee-keepers have demanded and felt the want of for years. Full particulars. Address

**The American Apiculturist,**  
WENHAM, MASS.

In responding to this advertisement mention GLEANINGS.

## FOR SALE!

One of the best located apiaries in Iowa, 150 Colonies, in Langstroth hives. Handsome two-story frame residence. Twenty acres land. All necessary out-buildings. Also fine dock White Wyandottes. Two cows, nice span driving horses. Never a failure of honey. White clover, basswood, golden-rod, buckwheat, etc. House nearly new, nicely decorated paper, a very pleasant home. Price \$2500.

C. A. SAYRE,

Sargent, Floyd Co., Iowa.

In responding to this advertisement mention GLEANINGS.

## APIARIAN SUPPLIES CHEAP.

BASSWOOD V-GROOVE SECTIONS, \$2.75 to \$3.75 PER M. SHIPPING-CASES VERY LOW.

SEND FOR PRICES.

**COODELL & WOODWORTH MFG. CO.,**  
3tfdb ROCK FALLS, ILLINOIS.

In responding to this advertisement mention GLEANINGS.

**J. FORNCROOK & CO.,**

MANUFACTURERS OF THE

## "BOSS" ONE-PIECE SECTIONS,



Will furnish you the coming season, ONE-PIECE SECTIONS, sandpapered on both sides, as cheap as the cheapest, and better than the best.

Write for prices.

Watertown, Wis., Jan. 1, 1890.

35d

In responding to this advertisement mention GLEANINGS.

**For Sale.**—40 colonies of Italian and hybrid bees in Simp. hives, mostly on wired frames. All in good condition, with plenty of stores. No foul brood ever in our county. GUSTAVE GROSS, 2tfdb Greenville, Bond Co. Ills.



**Eaton's Improved SECTION CASE.**  
BEES AND QUEENS. Send for free catalogue. Address  
**FRANK A. EATON,**  
Blairstown, Ohio.

In responding to this advertisement mention GLEANINGS.

## Maple Sugar and The Sugar-Bush

THIS IS A NEW BOOK BY

**PROF. A. J. COOK,**

AUTHOR OF THE

**BEE-KEEPER'S GUIDE, INJURIOUS INSECTS OF MICHIGAN, ETC.**

The name of the author is enough of itself to recommend any book to almost any people; but this one on Maple Sugar is written in Prof. Cook's happiest style. It is

PROFUSELY \* ILLUSTRATED.

And all the difficult points in regard to making the very best quality of Maple Syrup and Maple Sugar are very fully explained. All recent inventions in apparatus, and methods of making this delicious product of the farm, are fully described.

**PRICE: 35 Cts.; by Mail, 38 Cts.**

**A. I. ROOT, - - Medina, O.**



## HONEY COLUMN.

### CITY MARKETS.

**PHILADELPHIA.**—*Honey.*—We must report a dull comb-honey market, and scarcely able to get more than 11@12 for fancy honey; but the extracted market is now improving some; we get 5½¢ for buckwheat, and 7 for basswood, and may get ½ cent more before the month is out. We have made sale of all ours we had to sell, and we are sorry that we did not hold; but we could not tell how the market would be, on account of the weather. *Beeswax*, 22@25.

Jan. 22. 32 & 34 So. Water St., Philadelphia.

**NEW YORK.**—*Honey.*—Since the beginning of December there has been very little demand for comb honey. However, we have managed to work off the largest part of our consignments, and our stock on hand is small now. If the weather remains cold we shall be able to dispose of the remainder at reasonable figures. There is a good demand for cheap grades of extracted honey and no stock of it.

Jan. 22. F. G. STROHMAYER & CO.,  
122 Water St., New York.

**ST. LOUIS.**—*Honey.*—Cold weather has improved the tone of the market; but there is no appreciable change in prices. We quote: Comb, white clover, 14@16; inferior, 12½@13. Extracted and strained, light color, 5½@6; dark, 5. *Beeswax*, in demand at 23.

Jan. 22. D. G. TUTT GROCER CO.,  
St. Louis, Mo.

**KANSAS CITY.**—*Honey.*—Demand light and prices lower. 1-lb. sections, 12 to box, very fancy, 13. Good 1-lb. comb, 12@12½. Dark, 1-lb. comb, 8@10; 2-lb. white, 11@12; dark, 2-lb., 8@10. Extracted, white, 6@7; dark, 5@6.

Jan. 21. HAMBLIN & BEARSS,  
Kansas City, Mo.

**PHILADELPHIA.**—*Honey.*—Honey does not move with any degree of satisfaction in this market. Selling generally at 12@13 for No. 1.

*Beeswax*, yellow is in strong demand, and wanted in any quantity at 24¢ for prime bright yellow.

Jan. 22. CHAS. E. SHOEMAKER,  
Philadelphia, Pa.

**ALBANY.**—*Honey.*—The demand for both comb and extracted honey has been quite brisk during the past week; but prices have remained unchanged. Quotations same as in last issue.

Jan. 21. C. McCULLOCH & Co.,  
339 Broadway, Albany, N. Y.

**SAN FRANCISCO.**—*Honey.*—Extracted honey is quiet, and selling at 6@7½, as to quality. Comb honey firm in 1-lb. sections, 12@13. *Beeswax*, quiet, 18@20.

Jan. 13. SCHACHT, LEMOCK & STEINER,  
16 & 18 Drum St., San Francisco, Cal.

**KANSAS CITY.**—*Honey.*—The demand for honey is still light. We quote: White, 1-lb. comb, 12½@13; 2-lb., 11@12; amber, 1-lb., 11@12; 2-lb., 10@11. Extracted, white, 7@7½; amber, 5@6.

Jan. 22. BEESWAX, 22. CLEMONS, CLOON & CO.,  
Kansas City, Mo.

**BOSTON.**—*Honey.*—Sections, 1-lb., 16; 2-lbs., 15. Extracted, 7@9. *Beeswax*, 23. Trade dull.

Jan. 23. BLAKE & RIPLEY,  
57 Chatham St., Boston, Mass.

**DETROIT.**—*Honey.*—Comb honey continues to be quoted at 12@14¢, with slow sales. Extracted, 7@8¢.

Beeswax, 24. M. H. HUNT,  
Jan. 22. Bell Branch, Mich.

Get honey direct from the producer. Send for reduced prices of filled sections, pails, cans, etc.

OLIVER FOSTER, Mt. Vernon, Ia.

**FOR SALE.**—2000 lbs. of choice white-clover honey, well ripened, in 60-lb. cans, at \$4.75 per can, boxed, f. o. b. No. 1 Spanish-needle honey, \$4.50 per can of 60 lbs. 3-4d JNO. NEBEL & SON, High Hill, Mo.

### Light Brahmas and Laced Wyandottes.

Standard, high-scoring males, \$1.50 and upward. Eggs from show birds \$1.50 per clutch, after the 7th of April. SIGEL F. GROSS, Atwood Ill. 3-4d

## SMALL - FRUIT PLANTS.

All of the leading varieties at one-half the usual price. Send postal card for prices and description of my new black raspberry. **EZRA G. SMITH.**  
Manchester, Ont. Co., N. Y.

In responding to this advertisement mention GLEANINGS.

## Wire Cloth.

For door and window screens, tacking over hives and nuclei for shipping, making bee and queen cages, and a variety of purposes. We have the following list of green and black wire cloth which is not exactly first class, but is practically as good for the purposes mentioned, and at prices MUCH BELOW the ordinary price. You can no doubt select from this list a piece to suit your needs. Price in full pieces, 1½ cts. per square foot. When we have to cut it, 2 cts. In case the piece you order may have been taken by some one else before your order comes, please say whether we shall send the nearest in size, or cut one the size ordered at 2 cts. per ft., or give a second or third choice.

No. of Rols. and Color.	Width, In's.	Length, Ft.	Sq. Feet.	Price of a Full Roll.	Pieces less than 100 ft. long. These figures are the number of square feet in each piece. Multiply by 1½ cents for the price of piece.
10 green	8	100	67	\$1.17	65, 65, 64, 63, 63, 62, 54, 40, 33
1 green	10	100	83	1.46	
25 green	12	100	100	1.75	44, green; price 77 cts.
1 green	14	12	14	.25	
2 green	16	100	133	2.33	
1 black	17	100	142	2.47	
1 black	18	100	150	2.62	
5 green	18	100	150	2.62	
1 black	20	100	167	2.92	150 sq. ft., green; price \$2.62
1 black	22	71	128	2.24	110 sq. ft., black; price \$1.92
9 green	24	100	200	3.50	140, 100, 90, 40, 30, 20, 5, green.
1 black	24	100	200	3.50	
64 green	26	100	217	3.50	This is below reg. pr. of 1½ c.
18 green	28	100	233	4.08	224, 224, 117, green; 233, black.
6 green	30	100	250	4.37	
3 black	30	100	250	4.37	
14 green	32	100	267	4.67	133, 133, green; price \$2.33
1 black	32	100	267	4.67	253, black; price \$4.43
1 green	34	100	283	4.91	253, black; price \$4.46
14 green	36	100	300	5.25	270, green; price \$4.72
1 black	36	100	300	5.25	150, black; price \$2.62
8 black	38	100	317	5.54	269, black; price \$4.70
3 green	38	100	317	5.54	258, black; price \$4.50
3 black	40	100	333	5.83	317, black; price \$5.54
1 green	40	100	333	5.83	
8 black	42	100	350	6.12	350, green; price \$6.12
1 green	44	100	367	6.42	

A. I. ROOT, Medina, Ohio.

### CONVENTION NOTICES.

The Northeastern Michigan Bee-keepers' Association will hold its eighth annual meeting on Wednesday, Feb. 5, 1890, in the Council Rooms, in the Fire-Engine House, at Lapeer, Mich. First session begins at 10:30. Low rates at hotel.

W. Z. HUTCHINSON, Sec'y.

The sixth annual meeting of the Wisconsin State Bee-keepers' Association will be held in the capitol building, at Madison, Wisconsin, Wednesday, Feb. 5, 1890. An interesting programme has been provided, and prominent bee-keepers will be present from this and other States.

Dr. J. H. VANCE, Sec., Madison, Wis. C. A. HATCH, Pres., Ithaca, Wis.

The 21st annual convention of the New York State Bee-keepers' Association will be held at the Court-house, Rochester, N. Y., Feb. 5, 6, 7, 1890. The following is the programme:

First day. New Methods of Queen-rearing, by G. M. Doolittle. Miscellaneous topics. Evening session. Best Method of Working to Secure Reduced Rates on Honey—discussion.

Has it Paid Honey-producers to Buy Italian and other Imported Queens? by Ira Barber.

The New Races of Bees, by G. H. Knickerbocker. Second day, morning. How to Run second-apariaries for Comb Honey, in Connection with the Home Apiary, for the most Profit, by A. E. Manum.

Betsinger's Long-tried System of Non-swarming—given to the public for the first time, by N. N. Betsinger.

Discussion of special questions. Afternoon session. President's address.

The Fraternity, the Honey-producer, Queen-raiser, Supply-dealer, and Editors; their Obligations one to Another, by Ernest R. Root.

Discussion—Is it Advisable to Introduce Laying Queens to Parent Colony, after having Cast a Swarm, or been Divided Artificially?

Discussion—Marketing Honey. Discussion—The reported short Crop of Honey, and accompanying Prices for 1889—their Cause and Effect.

Question-box. Third day, morning. Reading miscellaneous communications. Shallow vs. Large Frames in the Production of Comb Honey, by J. H. Martin. Question-box.

G. H. KNICKERBOCKER, Sec'y.



Vol. XVIII.

FEB. 1, 1890.

No. 3.

TERMS: \$1.00 PER ANNUM IN ADVANCE; 2 Copies for \$1.90; 3 for \$2.75; 5 for \$4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

*Established in 1873.*

PUBLISHED SEMI-MONTHLY BY

A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices, NOT LESS than 90 cts. each. Sent postpaid, in the U. S. and Canadas. To all other countries of the Universal Postal Union, 18 cts. per year extra. To all countries not of the U. P. U., 42 cts. per year extra.

# IS IT ADVISABLE TO SHUT BEES IN THE HIVES DURING WINTER?

A VALUABLE ARTICLE FROM THE PEN OF L. C. ROOT.

In your issue of Jan. 1st I notice a question on p. 24, "Would it injure bees to keep them shut in the hives in the winter time?" etc. I feel *very certain* that the reply to this question will tend to lead the uninformed into trouble. My reply would be, Never allow the entrance to become closed in any way. From long-continued and close observation I conclude that this is not only correct, but that it is very essential that the hives be so arranged that the bees may be certain of their freedom. Other things being equal, I have found bees to winter best indoors when the hives were removed from the bottom-boards and set on two scantlings, or, what has proven better, leave them on it, when it contained a good-sized ventilator which was left open, so that dead bees, or bees leaving the cluster to die, would drop readily from the hive without a possibility of clogging the entrance or causing other ill effects.

While visiting my friend P. H. Elwood's wintering-rooms, where his bees were wintering so perfectly, my attention has been called to the almost universal way in which the bees were clustering below the frames in the opening in the bottom of the hive.

When Julius Huffman was wintering his bees so perfectly, they could be seen clustering on the outside of the hives. Mr. Ira Barber calls attention to the same fact with his bees. It is not enough that there be "plenty of space under the combs, that dead bees may fall down out of the way." Capt. Hetherington went to large expense in arranging his large bee-house, to make the floor of slats, with spaces between, so that, when bees left their clus-

ter and the hives, they would fall below the floor, where they could not in any way attract or affect the bees remaining in the hives.

During the past twenty years I have visited and examined the winter repository of many hundreds of bee-keepers, as well as the apiaries of many who winter on their summer stands. These visits have been made, usually, during the spring months, for the purpose of purchasing bees, and I have observed closely to ascertain the conditions under which bees have wintered most successfully. I have found it most noticeable in numerous cases, that hives would be found well stocked with honey, and often brood, and crowded with dead bees which had evidently been heated and worried until all were dead, and all as a result of the entrance becoming closed. Sometimes this would have been obviated if the hole which is found in the front of some hives up from the bottom had not been closed. I think this a question of much importance, and one that should command some attention.

Stamford, Ct., Jan. 11.

L. C. Root.

Many thanks, friend R., for your kindly caution. I fastened the bees in their hives one or two winters, when they were kept in a sawdust-packed house. The whole bottom of the hive was covered with wire cloth, and this was placed on a frame so as to place it two inches below the bottoms of the hives. The hives were placed on strips so as to permit air to pass through this whole large surface of wire cloth. The bees wintered nicely, and I didn't have any dead bees on the floor. This latter point was principally the purpose of the experiment. As a rule, I am, like yourself, opposed to fastening the bees in their hives. Your suggestion from Capt. Hetherington, of having the floor made of slats, so that the dead



bees may easily be swept through, is something I never thought of; but I think it would suit me exactly. Many thanks for the suggestion. Your experience has certainly very much more weight than any of the experiments I made years ago, when we practiced wintering indoors.

#### SUB-EARTH AND OTHER VENTILATORS NOT NEEDED.

##### CELLAR OR CAVE WINTERING.

ON page 11 of GLEANINGS for the present year I see you wish to know more about the sub-earth ventilation to my bee-cellar, which friend Stephenson speaks of in his letter regarding his visit here. When this outside bee-cellar was built, no one could have made me believe but that any place in which bees were to be kept should have means provided for a direct draft of air through it at any time or all times when the weather was mild enough to admit of it, without running the temperature of the cellar down too low. For this reason I prepared for what I considered the best possible ventilation of my bee-cellar when I built it, the ventilation being done by putting in a sub-earth ventilator something over 100 feet long, the same being arranged with two large tile, the one above the other. The under tile was to act as a drain when there was any water to carry from the cellar, or as a ventilator as far as it was not filled with water, the upper one always carrying in pure warmed air from the outside. At the top, in the opposite end, was the ventilator to carry off the impure air, which had in it the means of being opened to the capacity of both the large tile, or of being adjusted to any amount required, from the whole amount to none at all. As the sub-earth ventilator was placed deep in the ground, I thought that it need not make the cellar too cold by leaving the upper one wholly or partially open at all times; but when I came to put it to actual practice, I found that, in all cool weather, when there was a wind I could not keep the temperature where I wanted, at all, so I began closing the upper ventilator entirely, except on all days when the mercury was above freezing. As this made an endless lot of work, I resolved to leave it closed entirely for one month, and see what would become of the matter. It was with some misgivings that I went into the cellar at the end of that time, but I found the bees in splendid condition; and, to make a long story short, I will say, that, little by little, I kept shutting up ventilators till I became fully satisfied that enough air came into this underground cellar through the masonry and dirt covering, for all the necessities of the bees. Now, I not only found that the bees wintered just as well as formerly, but a little better; and, what was of more value to me still, I now had no trouble in controlling the temperature. This brings me to another point, which I wish to speak of, and that is

##### EVENNESS OF TEMPERATURE.

I see by page 10 of GLEANINGS that you still hold to your old ideas, that a bee-cellar must necessarily be too warm in a mild winter like the present; so for your benefit, and for the benefit of many who write to me, I wish to say that this underground cellar of mine is just as perfect in this, the warmest winter I have ever known, as in the coldest which I have had experience with. The temperature has

varied but one degree since about the middle of November, it then being 47° and now standing at 46°. During severe winters the temperature at this time of the year is not far from 45°, thus showing that a mild winter makes a difference of only one degree with the cellar. This evenness of temperature, and keeping it at about the desired point, is one of the great secrets of successful wintering in cellars, according to my opinion, and one of the reasons why I prefer a cellar entirely under ground away from any building, or that which may give it an unevenness of temperature. The outside temperature has been exceedingly warm for the past two months, twice going as high as 63° in the shade, and remaining thus for 12 or more hours; yet such warm weather does not change the temperature of the cellar in the least.

##### SHUTTING BEES IN THEIR HIVES.

ON page 24, in reply to Mr. Richardson, you say, "If the bees were in the cellar, I think I should prefer to have them fastened in their hives." Now, I should like to have you give us your reasons for so thinking. I thought it was decided by nearly every practical bee-keeper, long ago, that bees should not be fastened in their hives while in the cellar; and really I can see no object in so doing. The reasons for not doing this, are, first, when an old bee gets ready to die it always leaves the hive, if the temperature in which the hive is kept will admit of its doing so. Now, in a cellar of the proper temperature, these old bees can always do as nature prompts, and so strive to carry this out that they start, some time before they expire, to get away from the hive; and, if confined to the hive, they keep returning to the cluster, running over the bees, buzzing away on the wire cloth, etc., so that, when large numbers expire at the same time, as they often do, toward spring, the whole colony is aroused, when a struggle for freedom ensues, which is often very damaging to the whole colony, if it does not result in their death. Again, when the cluster spreads out to take in new supplies of honey from the surrounding combs, as most colonies do several times through the time they are confined, they will often come out on the outside of the hive, walk about a little, and return. If on such occasions they find themselves prisoners, the same kind of stampede occurs as before, and much harm is the result. After experimenting for years in regard to how the hives should be placed in the cellar, I now raise them from the bottom-board from two to three inches all around, leaving this space entirely open, so the bees can pass out or in as they please.

G. M. DOOLITTLE.

Borodino, N. Y., Jan. 16.

When the senior editor dictated the footnote in regard to the difficulty of maintaining an even temperature for cellar wintering, during open winters, he did not know of the even temperature that I had been having right along with the 40 colonies in my front bee-cellar. Although we have had weather as warm as 65 in the shade, and that, too, continuously for several days, it has never been above 47 nor below 44 in the cellar; but with very little attention I think I could have kept it within one degree. With upground repositories, it is no doubt true that it is difficult to keep the temperature even; but with a good cellar like mine, partitioned off by a brick wall and a tight-



fitting door from the main cellar, and darkened by a porch over its windows, or with a repository like yours underground, there can be very little trouble. I have no sub-earth ventilator. It is a great satisfaction to look up under those hives without bottom-boards, and see the clusters of bees hanging down, part of them below the frames, in that quiet, dormant sort of repose, or Clarke's hibernation; and it is no less a satisfaction to think that I can maintain the temperature that keeps them in this condition.

ERNEST.

Ernest replies as above in regard to the warm winter. Shutting bees in their hives in a cellar or bee-house is not always productive of bad results. See my answer to friend L. C. Root.

### PRIZE HONEY.

#### HOW TO KEEP DIFFERENT SOURCES SEPARATE.

IN the preparation of extracted honey for competition at exhibitions, it will doubtless be considered pardonable to go to some extra trouble in preparation. Where the prize is given on honey from different sources, such as on clover, linden, and thistle, respectively, we must aim at keeping the honey gathered from these separate places at different times, separate from each other. I take a colony just booming with bees, and am careful that they have only nice light comb. It may be thought that the color of the honey will not be affected by being stored in dark comb; but it is highly probable it will, and therefore should be avoided. Now, if I want clover separate I extract all uncapped honey from the lower combs, and empty the upper ones. If it is a strong colony, and the honey-flow good, there will be unmixed honey from whatever source the flow may have come. Now, instead of extracting this honey I leave it in the hive to within a few days of the time I leave for the exhibition, and then extract it carefully and seal the honey in jars. The best of clear flint glass should be used to show to the best advantage as to color, and for the same reason it should not be put in too large vessels, as the color will not show to the best advantage. As to placing, try to place it in a position so the light will be thrown right through it. This, too, gives the judge a favorable impression. The advantage to be gained by leaving honey on the hive is, that you secure it in the ripest condition. This gives you a point in specific gravity. It will not be affected as to color; and as to flavor, no one will admit that honey for some time off the hive and out of the comb is better flavored than that just taken from the hive.

I have had a very fair measure of success in exhibiting, and I attribute it to the above. Of course, in a poor honey-flow the bees will gather from doubtful sources, and a really good article for exhibition need not be expected.

#### EXTRACTORS, REVERSIBLE AND NON-REVERSIBLE; IN FAVOR OF THE STANLEY.

I see on page 956 you wish to hear from those who have used extractors swinging four or more combs at once. As I know you are a man pleased to arrive at facts, even should they bear against your opinion, I shall give you my experience. I purchased a four-frame reversible (the Stanley). At the time, I was afraid it would be harder on the

combs; yet I thought it easier to work, and more rapid. I have now used it two seasons and a part of a third, and I find the reversible machine is not as hard on combs as the non-reversible. I find a marked difference in favor of the former. I can do far more rapid work with the reversible, and can with less labor take the honey out cleaner.

I reverse just as the machine has almost stopped. Of course, it is harder to work, yet not very much harder, when one has acquired the knack of running it. I find the extractor bulky, and it will not go through an ordinary door. All things considered, I prefer the reversible extractor, but it requires more strength.

R. F. HOLTERMANN.

Romney, Ont., Jan. 14, 1890.

Your plan is a good one, friend H.; and, if I am correct, well-ripened honey is not so liable to candy, after being extracted, as honey taken before it was fully capped over. Years ago I used to cut chunks of honey out of the combs when we wanted some for the table; and that taken out of the hives very late, say in October, would often stand on a plate during very severe freezing weather, without a trace of candying. The honey that ran out of the comb would be clear and crystalline, even when so thick the plate could be turned over without spilling. Now, I do not mean to say this will always be the case, but I think that the perfect ripening of the honey has a good deal to do with the prevention of candying.—Many thanks for the fine compliment you pay us in your report of the Stanley extractor.

### UNUSUAL WARM WEATHER.

#### CANDIED HONEY BETTER THAN THE LIQUID; BEE-KEEPING AND OTHER BUSINESS.

DECEMBER and January, up to this time, have been almost as pleasant as May. Peach-trees are in bloom, grass is growing, snakes are crawling, butterflies are seen, frogs are croaking; and yesterday, Sunday, 12th inst., my bees were carrying in pollen from two sources—one from alder, and I do not know what the other is from. Is this not almost enough to make us believe that the earth has gone southward several thousand miles?

I have 16 colonies of bees in nice condition. It was, however, a struggle between life and death with them all summer, in consequence of wet weather; but late in the fall they filled their hives full of honey from aster, a part of which we took out. This is all candied, and is almost as white as lard. Nice candied honey is the most delicious thing I ever put into my mouth. I know a Methodist preacher who always shouts, and praises God after eating honey; not, as he says, because it is honey, but because the good Lord was so good as to make the bee to gather the honey, which man can not do. When I eat candied honey I feel much like that preacher. Man makes the hive, and the Lord makes the honey in a liquid state so the bees can gather it, and then he completes the work by candying the honey. Many are asking for recipes to keep honey from candying; but I would rather have a recipe to make it candy.

I have been much interested in GLEANINGS and the *Bee-Keeper's Review* on the subject of "What can a man best follow in connection with bee culture?" Now, I am one of those little bee-keepers

who must follow something else; but I can not think of descending from the honorable position of bee-keeping to that of an Italian peddler, as recommended by Mr. Doolittle, in the *Review* of Dec. 10, page 201. He says: "Then let our bee-keepers start out with a stock of diaries, file, a whetstone, a small vise, and a small hammer, and call at every house, selling diaries, and sharpening shears and scissors, etc." Now, wouldn't a bear and a monkey be better? Perhaps brother Doolittle, while selling his queens by the hundred and his honey by the ton, has never thought of putting himself in our place.

G. C. HUGHES.

Pipestem, W. Va., Jan. 14.

No, no, friend H., don't advise getting a bear and a monkey. They are not really useful. But a man who is expert with file, whetstone, vise, and hammer, can do good, everywhere he goes. I think he will do more good, however, and make more money, to have a little shop, and have folks come to him. Perhaps not many of our bee-keepers are in the habit of shouting much out loud; but I am not sure but that it would be a good thing if they were; but if we do not shout out loud, I do hope we praise God, not only in our hearts, but out loud, in some shape or other. A man who finds nothing in his daily life to thank God for is really to be pitied.

#### SOME HINTS TO THOSE WHO WRITE FOR PUBLIC PRINT.

SUGGESTIONS TO THOSE WHO WISH TO SEE THEIR  
COMMUNICATIONS IN PRINT.

*Friend Root*:—It is a pretty hard thing to write to a person when you think that perhaps what you have to say will pass through the hands of several culling clerks or sub-editors, and may never reach the person addressed. But let that be as it may, you have the advantage, and have so much to say that comes home to our own experience that we feel like shaking you by the hand, and having a good laugh, though I admit I was feeling a little bad to think you would not publish my honey report this season, when it began to come up among the best, about 100 lbs. to the hive, and doubled my stock. I also sent you a clipping taken from our county paper, giving an account of a suit tried in the State of New York, for bee-pasturage, in two courts, both times going against the bee-keeper. I was quite interested, as I had been threatened. You passed it over in silence. Again, some time ago you mentioned in GLEANINGS that you sent a present (I forget what) to every one that was on your books for GLEANINGS, Jan. 1, 1889. I haven't seen a wrapping. Pardon me, but I began to feel like the poor shoemaker when he had run his credit out with the merchant. He reported that the merchant was going to break up, as he was going to quit him. But, friend Root, you made it all right when you gave us such a good laugh about that hateful little dog. I assure you we had a good laugh for several days when we thought of it; and about that old woman bothering you when you were in such a hurry to get home to take your nap. I hope this may reach you in person, for your sympathies are so large, and experience so great with humanity, that I like to talk to you. You see, this

is to you personally. If it conveys a thought to appropriate to your store of knowledge, all right.

S. D.

Thanks for your kind words, friend D. But you are a little bit uncharitable toward us here. It is true, your letter had to pass through the hands of several clerks; but every letter that comes here reaches A. I. Root within two or three hours after it comes from the postoffice. When letters are very long, and may contain matter suitable for print, they are turned over to Ernest, and he usually decides what shall be used for the journal. The letter in question was passed over to the printers by Ernest; but your old friend A. I. Root afterward threw it out, and I will take space to tell you why, because it may help some of the others who send us matter for publication.

In the first place, it was pretty long, and a good deal of it was unimportant. It starts out with:

As the season for honey-gathering is about over, I herewith transmit my report.

Now, the above conveys no valuable information at all, and your report would be just as good without it. A great part of the rest is a good deal like the above, and which, if used for copy, would have to be marked out. This is laborious, and requires one of our best and most valuable men. The report in regard to your large yield is not clear. To illustrate, we give it just as you wrote it, as follows:

So I started in to the honey season with 13 stocks, which filled 1000 lb sec & considerable part filled, and doubled these stocks. But as these sections the first part of the season were all over filled I believe 100 lb in the aggregate, which would make 1100 lbs from 13 hives spring count, which I think is not so bad.

Now, I can not understand, from the above, just what you meant to tell us; and inasmuch as we can not afford space for any thing that is not clear and plain, I give instructions to have every thing rejected that is not so written. If the intelligence is evidently valuable, of course we take more time, and oftentimes write back, or submit a proof to the writer, to get it just as he intended it should be. Well, in view of the above it would help us greatly if our friends would separate the different points of their communications by paragraphs, so that we can clip out with the scissors the ones we prefer to use, or, better still, put them on separate slips of paper. But by all means, make your meaning clear and plain, so a child can understand it, and leave out all unimportant words and phrases. Tell one fact first; then if you have another, make a paragraph, or, better still, skip a line and give us another. In fact, you may send us as many as you please, if they are thus separated. You may think this is asking a great deal of you; but, dear friends, stationery is very cheap nowadays. We would gladly furnish it to you free of charge, if that would help the matter, and we are always ready to pay for matter that is really valuable. When I say this, however, please remember that we



constantly have *great quantities* of matter that is rejected at once; then we have quite a good deal that is pretty fair, but only a *very little* comparatively that we call first class. Now, the first-class writers are never those who write *solely* with the view of getting pay for their writings. In fact, I rather think they do not think of pay at all. They write because they have something valuable to tell, and because they love to help the great reading public.

Finally, dear friends, the one who complains because we don't use his communications is seldom a first-class writer—at least, I have always found such to be the case. Now, friend D., it seems a little hard that I should make such a reply to so kind a letter as yours; but I have written it for a great many others as well as for yourself. I think that, with a little painstaking, you may become an excellent writer. In fact, the kindly spirit of your letter above shows it.

We have looked for the clipping from your county paper, but we do not find that it ever reached us. The *present* you allude to was probably the *Ignotum* tomato seed; but as our friends may not all have gardens, we announced to them that the seed would be sent only to those who asked for it. As your letter was evidently not intended for print, we use only your initials.

#### PINE-TREE HONEY.

MORE ABOUT IT.

We clip the following from the *Daily Register*, Danville, Va.:

During the latter part of December, people in the neighborhood of New Design, and between that place and this city, noticed that the green pine tags on the trees were covered with a sticky substance, which, when examined, proved to be as sweet as honey. It was crystal like water, and, when it dried, it had a whitish or ashy color, and was easily pulverized. It caused the foliage of the pine-trees to sparkle in the sun's rays as though it had been varnished.

A gentle rain on the 30th of December washed this curious substance away, but in a few days it returned in liquid form, and is now dropping from the pine-trees like dew.

Yesterday Mr. W. D. Tucker, who lives near New Design, caught a two-ounce vial full of this queer honey, which he brought to this city for chemical examination.

The liquid is about the thickness of mountain corn whisky, and has the same dull crystal color of that article, and it has the taste of wild honey, though a trifle more of an insipid sweetness, with no flavor of turpentine and resin about it, as might be expected from any product of the pine-tree.

It leaves the pine tags in a gummy, sticky condition, and the bees seem to be reaping a rich harvest from it. So far it has appeared on none but pine-trees, and it is a puzzle to everybody who has seen it. What is it? Where did it come from, and has this remarkable spell of weather anything to do with it? are some of the unanswered questions which have been asked.

Our readers will doubtless recognize that the *Danville Register* is not of the GLEANINGS family; for if it were, it would never think of using "mountain corn whisky" for a comparison. What kind of company does the *Register* man associate with, any way? Nevertheless, we are very glad to get the facts in regard to the beautiful

pine-tree honey. Yes, beautiful in taste and looks, even if it should prove true that it is the work of aphides.

#### HOW STATE SOCIETIES MAY AFFILIATE WITH THE

INTERNATIONAL AMERICAN BEE-ASSOCIATION.

On the 3d page of the *American Bee Journal*, friend Newman advises all local State, Territorial, and Provincial associations to affiliate with the International Bee-association, and the Southwest Wisconsin have at once taken the hint and done so. As it is to the interest of both the local societies and the International to associate under the regulations voted at the meeting in Columbus in 1888, I should like to suggest to all presidents and secretaries of these associations that they investigate this matter and get their associations affiliated this season, so that they can unite in the steps to be taken for the World's Fair of 1892. Below are the paragraphs of the Constitution and By-laws of the International A. B. A. referring to this matter. I solicit correspondence from all interested in this question.

C. P. DADANT,

Hamilton, Ill., Jan. 18.

Sec'y I. A. B. A.

Delegates from affiliated local Associations shall be admitted free, and have all the rights of annual members.

The Presidents of all the Local Associations, in affiliation with the International Association, shall be *ex-officio* Vice-Presidents of this Association.

Any State, District, Territory, or Province in North America may become affiliated to the "International American Bee-Association" upon the annual payment of five dollars, which shall be due on the first day of January in each year.

The Secretary of each local Affiliated Society shall, through its Secretary or President, on the first day of August in each year, report to the Secretary of the International American Bee-Association, the number of its members, stating the aggregate number of colonies of bees in their apiaries in the previous fall, the number in the spring, the increase since, and the approximate number of pounds of honey produced (stating comb and extracted separately), and any other desirable information concerning the probable honey-production of those not members of the Society, but within the territory of the affiliated local association.

If the annual Affiliation Fee be not promptly paid, and the Local Report withheld, the "International American Bee-Association" may at any time within one month of the dates mentioned, withdraw the privileges of affiliation, which comprise the following:

The President of each Affiliated Society is *ex-officio* a Vice-President of the International American Bee-Association.

It shall be entitled to receive from the International Bee-Association two Silver Medals, to be offered as Prizes for Honey, open for competition to all its members, one for the best in the comb, and the other for the best out of the comb.

The members of all the Affiliated Societies shall be entitled to the facilities which may be provided from time to time by the Honey Company, for the sale of Honey and Beeswax, upon the terms stated in the By-Laws of the Company.

Each Affiliated Society shall be entitled to the services of a Judge to award premiums at its Bee and Honey Show, upon the payment of his actual railroad and hotel expenses.

Each Affiliated Society shall be entitled to elect one Delegate to each 25 of its members, or fraction thereof, who may represent it at the Annual Convention of the International American Bee-Association—all expenses of such Delegates to be borne by themselves or the local society, or both conjointly, as they may provide. Such Delegates shall be entitled to vote, hold office, and take part in all the deliberations of the International Bee-Association.

## THE DIBBERN ESCAPE.

## A CORRECTION, AND FURTHER SUGGESTIONS.

IN your issue of January I you head my article as an "improvement on Reese's" bee-escape, and, further on, follow it up with "Reese's horizontal escape." Now, I am not willing to admit that mine is simply an improvement. I claim the horizontal double-cone escape as an entirely original invention of my own. Except the board, it is entirely unlike the old escape of Mr. R. Mr. Reese will not claim that he invented the double-cone horizontal escape, and would, perhaps, not have thought of his latest had I not sent him a diagram of mine. Now, what is his escape, after all, but a different form of my horizontal double-cone escape? In my private letter to him I stated, "I had failed to place the escape inside the board;" that is, up to that time I had not been able to do so satisfactorily to myself. Since then I have perfected my escape, and claim that my present escape is as far ahead of his latest as my first was ahead of his old one. I will now point out a few objections I have to his supposed improvements on my escape.

1. It is complicated, and hard to make.
2. It cuts up the board badly; can not be removed from the board, and can not be used for a honey-protector without boring additional holes.
3. The board would have to be taken off, and tin nailed on both sides, every time it is exchanged from an escape to an inner cover, and *vice versa*.
4. I have found that an escape with but a single outlet, for only one bee to pass at a time, is not sufficient when many bees are in the supers. When the escape-board is placed right under such supers, the bees become panic-stricken, something like people at a theater when the cry of fire is raised, and the bees would be liable to become packed and wedged in the escape. It was for this reason that I used two of my single-outlet escapes.

I have no quarrel to pick with my friend Reese, from whom I have received some valuable suggestions, and to whom bee-keepers are indebted for the first practicable escape. Whenever he gets up a better escape, or a real improvement on mine, I will freely "acknowledge the corn."

During the recent summer weather I made numerous experiments with my escape. One fine summer day I exposed a superful of partly filled sections, and allowed the bees to rob it for a time. When they had fairly got to swarming on it, I quickly put a board on it, with escapes up. It was very interesting to see the bees pouring out of the escapes, and the frantic efforts of others to get in. I tried all the different forms of my escape in this way, so I could form some kind of idea as to which was best. Again, I placed supers containing sections, that had been extracted, on strong hives; and when the bees had got fairly at work I placed different patterns of the escape under them; and invariably the bees were all out of the supers in a couple of hours. All seemed to work well; but I noticed that the bees were more inclined to crowd and become wedged in the single-outlet escapes. Another point I discovered was, that, where the escape occupies the bee-space, some care is necessary in putting on the boards so as not to crush any bees directly under the escapes. To overcome these objections I set to work to perfect my escape, and now have it about all that can be desired.

When I wish to do a thing, and there are no tools

suitable for doing it, I go to work and invent them. Now, I wanted to cut a round hole, four inches in diameter, out of the center of my escape-boards. I found my Clark bit would expand to only 3 inches. I went at it, and made an extra-fine cutter for it, and I can now cut out "cart-wheels" up to five inches in diameter. I cut out only four-inch holes, as that is as large as I need, and my escape-boards are only  $\frac{1}{4}$  inch thick. Now, when I have my four-inch piece cut out, I bore an inch hole through the center, and nail a piece of tin, half an inch larger, and with a hole in the center, to correspond to the one in the wooden piece on it. It can now be replaced in the hole again, and it is just what I want as a honey-protector, or inside cover. I now take another piece of tin of the same size, and fasten an outlet escape, of star shape, on it, also a few pieces of tin near the edges, so as to hold the escapes exactly in the middle of the hole cut out of the board. The escapes are just  $\frac{1}{4}$  inch smaller all around than the holes, allowing enough room for bees to get out. I make the escapes so as to be shaped like a four-pointed star, as that very nearly fills the hole, and I find that, through four outlets, the bees can get out of the escapes faster than they can get in through the hole from the top. It will be seen that my escape now occupies the place cut out of the board, without any projections to get jammed or bees to get killed. More than this, it can be instantly taken out at the top, without removing the board at all, and the solid plug be put in, and the reverse. The board can also be reversed to match bee spaces in hive or supers, or it could be used without any bee-spaces at all. I have about settled the question, that one center four-point escape is enough, and the best; but should it be found that two such escapes are necessary, how easy it will be to clip out another hole and use two such escapes! Is there any objection to this cutting up the board? I think not; but I can see several decided advantages. In the first place, as I use these boards directly over the sections I can generally determine when a case is finished, by removing the plugs and looking in. How nice these holes will be in shipping bees, to tack a piece of wire cloth over! also to put a piece of carpet over, just before storing for winter, or to be used to feed through.

I am now entirely satisfied with my escape; and if any man has any thing better, let him "trot it out." I do not see that any thing better can be desired.

I do not think that bee-keepers in general realize the value of my invention. I trust, however, that none will allow the benefits I freely offer to "bee escaping" them the coming season.

Milan, Ill., Jan. 6.

C. H. DIBBERN.

We styled yours an improvement on Reese's escape because it was an improvement; that is, we meant it was a much better device. The horizontal feature of your escape, it is true, is, so far as we know, entirely your own invention. And Mr. Reese does not, if we understand correctly, claim any honors on it. When we put the heading, "Reese's horizontal escape," we meant by that, Reese's modification of your invention, and styled it Reese's in distinction from your original design. We have looked over the horizontal escape, and have come to the conclusion that the construction of yours is better after all. It is simpler, and easier to make. And, friend D., we *all* thank you.



## DOUBLE VS. SINGLE WALL HIVES.

## THE ADVANTAGES OF THE FORMER, BOTH SUMMER AND WINTER.

In determining which is the better, a double or a single wall hive for practical results, we should consider not alone the winter problem. At the late International Convention, where the matter was fully discussed, it was not, nor can it be shown to be, that a properly constructed double-wall hive packed with suitable material will not winter bees as well as the single-wall hive in a good cellar. Though it was shown, I think, conclusively, that there is a small saving of stores by cellar wintering, I think it must also be conceded that it is, on the whole, the most economical system of wintering. Here, then, are two points conceded in favor of single-wall hives; but I propose to show that these are more than offset by the superior advantages of the double-wall hive in spring and summer.

The saving of stores by cellar wintering is not over four pounds to the colony; and the saving in the cost of hives is not more than the value of four pounds of honey per year. Now we come to spring brooding; and my experience is, that there is a net saving of not less than ten pounds of stores to the colony by the use of the double-wall hive up to the first of June, in this locality; and I believe the saving would be still greater at any point further north. If we calculate, then, from the first of November till the first of June, we have a saving of at least six pounds of stores in double-wall hives over the best possible showing in single-wall hives.

But we will not stop here. There is another advantage in double-wall hives that has not heretofore been recorded; and it is the chief consideration with me in deciding in favor of them. *We can raise one-third more brood and bees in a double than in a single wall hive by the first of June!* We have the facts and figures to prove this point, and they will be given if desired. I will here simply allude to the fact that bees in protected hives in spring are stronger, and are able to gather stores, and to breast strong cold winds, when the bees from single-wall hives, being comparatively weak, fall to the ground, or become chilled on the flowers, and die. The cause of this state of things is undoubtedly due to the greater labor required to keep the brood warm during the cool nights and days of April and May, in single-wall hives.

Thus it will be seen, that the two points above conceded to the credit of the single-wall hive become a small matter when we compare the grand results that can be achieved with the double-wall hive in spring brooding, preparatory to securing a crop of honey. But I shall fall short of doing this subject justice, by not saying something upon the proper construction of double-wall hives and their winter and spring management. I know that many have failed with such hives, and I think I know why. I have said, and I desire to emphasize the fact, that a chaff hive, with damp packing, and damp walls and combs, is a poor place for bees. Indeed, it is far inferior to a single-wall hive in outdoor wintering, if it is allowed to get into such a condition; and I know that the ordinary management of these hives leads to more or less dampness, which is either death to the bees or there is a partial or complete failure in results. Double-wall hives, then, must be kept dry, and the packing must be thoroughly dry to begin with. Again, the

packing must be quite porous or it will require to be often changed. Thus, finesawdust, clover and oat chaff, that mat down close, are objectionable. Forest leaves, planer shavings from dry wood, and the excelsior sawdust obtained in sawing sections, are preferred, and from  $2\frac{1}{2}$  to 3 inches of packing about the brood-chamber is enough.

## DAMPNESS IN HIVES.

In preventing dampness I rely much upon proper ventilation, and practice two methods, both of which succeed well. The first is free bottom ventilation, and it seems best adapted to this locality. The second is upward ventilation in connection with a small entrance (2 inches by  $\frac{3}{4}$ ). This latter system seems better adapted to points further north, though I am not sure it is. With free bottom ventilation there is more and purer air furnished to the bees, and they appear to be able to keep the hive as warm as by the other plan, as the following will show.

About 50 miles due west of here are quite a number of apiaries of from ten to fifty colonies of pure black bees in box hives, where for more than 50 years they have held their own, and where, up to this time, the frame hive and the modern system of bee-keeping have been unknown or ignored. What impressed me most was the fact that all of these hives, without exception, were set on four small flat stones, from  $\frac{3}{4}$  to 1 inch thick, and they were left so the year round. I inquired of one old and intelligent bee-keeper why he let so much air in at the bottom of his hives, and he replied that they could not winter their bees in any other way! that the combs and hives, without the large openings at the bottom, would become damp, and the bees would die; that, as long as the hives and combs were dry, the bees were never injured by the cold! I suppose I have seen this same fact stated in the bee-papers a hundred times, and yet it does not appear that the mass of bee-keepers are profiting by it.

## BEST MODES OF VENTILATION.

It is now a well-known fact, that bees in winter, at intervals of three to five days, arouse from their torpid condition, and feed. During the intervals they take no food until the sense of hunger again arouses them. This is an interrupted hibernation. I have thought that they often go as long as a week without food; but when they do rouse up they raise the temperature and warm up their stores before they can feed; and in the operation they set in motion active currents of air. Now, I have observed that bees can not properly ventilate a hive except from the bottom; and the experiments of Mr. Corneil have shown that free bottom ventilation can not be had through a horizontal entrance of the usual size, without other openings in the bottom or other part of the hive. Bees then may, at their feeding-times, ventilate and dry out their hives in winter to some extent, where free bottom ventilation is provided for. The plan that I have tried, and which seems to answer every purpose, is to give a full entrance ( $\frac{3}{4}$  x 12 inches), and in the bottom of the winter-case, at the rear end of the brood-chamber, make five one-inch auger-holes, which are to be covered with tinned wire cloth. Upward ventilation is prevented as far as possible by the use of an inside cover for the brood-chamber, made of wood. The hive stands near the ground, and a few leaves are placed loosely beneath to keep the bees from trying to get under the hive, when they can fly, where the auger-holes

are located. The hives are painted on the bottom, and the dampness of the ground does not affect the hive or bees.

With the above arrangement the packing gets only slightly damp, which is soon dried out by taking off the cover of the winter-case once in two or three weeks when the sun shines clear. If the packing gets quite damp over the brood-chamber (and it often gets so on the cool days of spring), I throw it all out to dry on the cover, which is inverted on the ground. The sun is also allowed to shine full upon the inside cover of the brood-chamber. The effect of this treatment on the bees in the spring is very remarkable, and especially upon the laying of the queen and the rapid extension of the brood. The covers are usually taken off about 10 A. M., and returned at 4 P. M. Where upward ventilation is given, the entrance is closed to 2 inches by  $\frac{3}{4}$ , and no holes are made in the bottom of the hive. Over the brood-chamber is laid two thicknesses of cheap cotton cloth, and four or five inches of packing. I prefer the cloth to lay flat on the frames without any cross-sticks for passageways. With this arrangement, after a few weeks of cold weather the surface of the packing will become quite wet, while it is warm (50°) and dry beneath. I use mostly the excelsior sawdust on the brood-chamber, loose, as it can be handled almost as easily as a cushion, and is readily dried out, while a cushion is wet. When ready for the sections it may be taken out and stored in barrels, for future use; but the packing around the first story is left in place, as a rule, all the year.

A properly constructed double-wall hive is simply a winter-case for a single-wall hive. They should not be constructed all in one, as the packing, if it becomes damp, can not be removed to dry it out. My winter case is made of thin boards,  $\frac{3}{4}$  thick by 20 inches long, nailed up and down to a frame at the top and bottom. The bottom and cover are also lined with the same thin stuff; and the whole, with the flat tin roof, weighs under 25 lbs. It is light, easy to handle, and very durable. After five years' use I have yet to lose a colony in them. In summer we take most of the packing away, when they become excellent summer hives.

In conclusion, allow me again to call the attention of bee-keepers to the matter of bottom ventilation for winter hives.

DR. G. L. TINKER.

New Philadelphia, O., Jan. 16.

I think, doctor, I agree with you on almost every point you make. At the recent convention in Lansing, Mich., quite a majority recommended, with a good deal of emphasis, having the hives packed with chaff, or some equivalent, after they were set out in the spring, even where they were wintered indoors. A good many were quite decided on the point, a little to my surprise. Those who advocated single-walled hives, even after the bees were set outside in the spring, were very few; and I am inclined to think the objection to chaff hives for summer as well as winter has been mostly owing to the fact that the outside siding was not made so as to allow the packing to dry out. In my travels I have seen great numbers of chaff hives with the outside covering made of whole wide boards. I would not think of making a hive in that way any more than I would make a corn-crib out of boards instead of slats. Ventilation at the bottom

seems to be finding much favor, both in the wintering repository as well as outside. I do not like loose outside boxes, principally because they are too much machinery, and it requires too much tinkering. The point you make in italics, that you can get a third more brood in a double-walled hive than in a single one, by the first of June, it seems to me pretty nearly settles the matter. If we need chaff packing on, as late as the first of June, and then require it again as early as September, why in the world should we dispense with it at all?

### MORRISON'S QUEEN-CAGE.

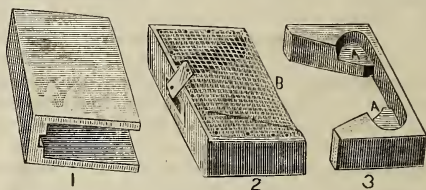
PERFORATED ZINC AND THE CANDY METHOD COMBINED.

I SEND by this mail a queen-cage which I have been using for two years past. I do not claim any originality for myself in this cage, but I have combined some ideas of others. I believe it is the best combined mailing and introducing cage yet devised.

1. It insures safe carriage through the mails, by its strength.

2. It has been examined and approved, both by the postoffice authorities of this country and Canada.

3. No other cage combines so many advantages in introducing the queen. You will notice that, when the cage containing the queen is pushed down between two combs, the bees have an opportunity to become acquainted with her through the screen. A few hours afterward the tin piece can be quietly turned, and the bees now have access to



MORRISON'S MAILING AND INTRODUCING CAGE.

the interior of the cage through the queen-excluding zinc piece. The queen will never be killed until the zinc is turned. At the end of 24 hours, after the bees have entered the cage turn the zinc and plug the hole with a little hard candy. This will prevent an attempt of the queen to go out of the cage for a few minutes after closing the hive, when, if not friendly, a guard at the entrance will admonish her to stay in.

I also call your attention to the candy in the cage. That candy will be in as good order if kept in a dry room a year from this as now. It was made according to the formula I sent you some weeks since; the only materials in its composition being confectioner's sugar and honey, boiled as in making cream candy. With this cage and this candy I send queens to European countries without any more thought or care than to sections of our own country. In cold weather I wrap the cage, so as to close one end, with waxed paper.

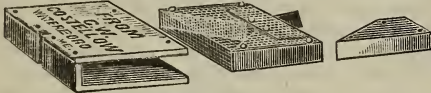
S. W. MORRISON, M. D.

Oxford, Pa., Dec. 16, 1889.

Thanks, friend M. I have been studying on this matter of queen-cages for a couple of years back; and I had already, before yours came to hand, directed my fancy to-



ward the Benton, or a cage after the one you describe. On account of the splendid record of the former for mailing queens successfully long distances, I have rather favored it. You very modestly, and with consistency, too, disclaim any originality for the invention in your cage. Looking back in *GLEANINGS* for 1885, page 733, November, I find a very similar one described by C. W. Costellow, of Waterboro, Me., a cut of which I reproduce as it then appeared.



Even he does not claim it to be wholly original with him. Such a disposition on the part of both is indeed refreshing in these days when apicultural priority in invention is so eagerly—yes, greedily—sought after. The cage is cheap, and very easily constructed. On account of the liability of the block splitting in No. 3 of your cage, I believe I should prefer the Costellow plan. There is one point you do not mention; and that is, the facility with which queen-bees can be examined. Another point is, the rapidity with which such a cage can be gotten ready for the mails by slipping it into its wooden case. You have added a feature, which I believe you alone are using; and that is, the use of perforated zinc. While the idea seems to be a good one, I should regard it as a little extra labor, and perhaps unnecessary. We introduce queens right along by the candy plan in our apiary. By the “candy plan” I mean causing the bees to liberate the queen by gnawing through a plug of candy—the plug being of such a size that the queen will be liberated in from 36 to 48 hours. With the very small percentage of loss we have had, I should hardly consider it of enough moment to go to the trouble and expense of the perforated zinc. Now, if your cage would send queens by mail as successfully as the Benton, which I very much doubt, then I should consider it the very best cage ever invented; but in the Benton cage, when the occupants are subjected to an extreme of temperature, as in going over the mountains, they can seek an inner and warmer apartment; and, again, when they come into a very warm climate they can enter a more open and better ventilated apartment. In one sense of the word, the Benton is climatic. It is this feature, I think, which gives the Benton such universal success. I will shortly describe it in *GLEANINGS*.  
ERNEST.

Since receiving the first letter of description, friend Morrison writes in regard to the priority matter in reply to ours. Mentioning the Costellow cage, he says:

*Dear Sir:*—I had forgotten the illustration of Costellow's cage. I don't doubt that Costellow got his idea of the cage from my cage. Don't you remember I sent you a queen in this cage in 1888? I shipped over three hundred queens in it during 1888. The queen-excluder zinc was added to all cages used in 1889, and I think it an important addition. So far as I have learned, Boombower made the cages first, and E. Flory, of California (I have

lost his address), suggested to me the use of the perforated zinc early in the season of 1888.

Oxford, Pa., Dec. 23.

S. W. MORRISON.

Yes, we remember receiving the cage in 1888, but Mr. Costellow sent his cage in 1885.

### SPREADING BROOD IN THE SPRING.

MRS. HARRISON TAKES BRO. DOOLITTLE TO TASK.

I HAVE long wanted to pick a crow with Bro. Doolittle. Although it is pretty old and tough, I think I can still pull out the feathers, though I may have to tug pretty hard at the tail and wings.

The old grudge is all about spreading brood. Somewhere about nine years ago, during the cold winters, I lost nearly all my bees, having the remnants of about sixteen colonies left. I had but one idea, and that was to build them up as soon as possible; and with that end in view I read up on the subject, and finally chose to follow in Bro. Doolittle's wake as closely as possible. I followed his directions to the letter, and my bees were soon all dead; and I've always firmly believed that, if I had not meddled with them, they would have come through all right. I do not doubt but that Bro. Doolittle succeeds in this way; but he knows better than his readers, when the conditions will justify spreading.

I saw something lately from his pen, with reference to spreading brood (but it is not at hand just now), in which he says a week may be gained in this way. Now, there is one thing which ought to be taken into consideration more than it is; and that is, difference in climate. Some years we do not appear to have any spring. It is cool until it is hot; we can wear winter clothes until we put on summer wear. Now, if brood is spread, and there comes a cold windy day, which may occur as late as May, it will damage a colony even if it does not prove fatal to it. Still, cool weather, even down to freezing, might not be so hurtful as these winds, which penetrate to the very marrow of our bones, and soon exhaust the life of a divided brood-nest.

I'll take back all I ever said about working with bees in the spring—better do it the fall before. If bees have plenty of stores, and are protected as much as is possible to do in the open air, against cold and piercing winds, it is safer, according to the light I now have, to let them manage their own domestic affairs until after fruit-bloom.

Peoria, Ill., Jan. 14.

MRS. L. HARRISON.

Mrs. H., I wish that both you and Mr. Doolittle had been present at the recent Michigan Convention. The question came up, and was discussed pretty thoroughly; and, if I am correct, a vote was taken in regard to the matter; and while one or two advocated spreading, the heavy producers, together with a good many others, were pretty vehemently against it, unless delayed, as you say, until after fruit-bloom or considerably later. I am sure that I have killed fair stocks by spreading the brood; and I very greatly doubt whether we can help the bees very much by taking the matter into our own hands. In the latter part of May, or in June, putting empty comb in the center of a strong colony will very likely assist the bees in starting an unusual amount of brood. We should remember,

however, Mrs. H., that friend Doolittle is a very careful man. He does not trust much to hired help, but has his eye on every thing that is going on, and therefore *he* would succeed where the majority of people might not.

### RAMBLE NO. 20.

#### RAISING HONEY; PEDDLING AT HOME, ETC.

AFTER a few days with our generous Scotch friends I began to feel so plethoric on fish and wild game that a further Ramble was absolutely necessary; and one beautiful morning we took passage on the steamer Horicon and made the entire trip of the lake, about 30 miles. The beauties of the lake must be seen to be appreciated, and the pen refuses to adequately describe the beautiful pictures that are constantly presented to the eye as we gracefully float over these historic waters. The Hawkeye was kept quite busy, and I have before me many souvenirs of the trip. From Baldwin, our landing-place, my trip continued by rail and stage, through Ticonderoga, and over battlefields of early days. The old fort is now crumbling, but well repays a visit by the tourist. Near by is the home of Joseph Cook, and we were contemplating the rearing of great men near where patriots fell, when we were dumped off the stage in the middle of the highway, and told to go straight ahead and we would find a boat to ferry us across Lake Champlain. I rambled out on a stone causeway, and saw a wheezing affair approaching, which appeared like some ancient settler's forlorn cabin adrift on the angry billows. It finally hauled itself in on a wire rope. The Hawkeye was leveled, and the captain dodged inside; and when I boarded his craft he wanted to know what I was up to with "that 'ere magnetical battery." While on the elegant Horicon we felt really aristocratic; and had we a mahogany cane and opera-glass, the Rambler might have been taken for a millionaire; but when we sat down on a coal-hod in the greasy engine-room of this crawfish affair, which had its head at the sides and a tail at each end, we felt as though we could shake hands with the next loose-jointed pauper we should chance to meet.

After landing, an invigorating walk of a mile found us at the residence of J. H. Larrabee. It was extremely easy to find him, for everybody seemed to know the genial John. We found him just as busy as a bee, operating his Barnes saw, getting out crates in which to ship his honey. Though not as bountiful as usual, his fine comb honey measured up into the thousands of pounds, and a ready sale at fair prices encourages him to look forward with bright plans for the future. His honey-house is quite small; but having an out-apiary recently established, he proposes to move the small house on sleighs some time during the winter, and build in its place a large structure 26x30, and two stories high. Our friend John, in common with nearly all bee-keepers in this portion of Vermont, uses the Bristol chaff hive, with ten L.

frames. Our friends here do not believe in small brood-chambers; and we will guarantee that every hive in Bro. Larrabee's yard had 50 lbs. of honey with which to go through the winter. The crate, or clamp, for securing comb honey in this apiary struck us as a very convenient arrangement. Our Hawkeye gave a very good picture of it. The crate contains forty 1-lb. sections. The sections are supported by slats nailed permanently across the bottom. Wood separators are used, and these slide loosely in grooves cut in the ends of the crate. A follower sawed thin at one edge, with the thin edge up, and a wedge to press down, the sections are all held firmly in the crate; and by removing the wedge and follower, any section can be readily removed. A bee-space can be allowed above or below, but we think in this apiary they are used without it.

After showing us his many labor-saving implements, the genial John said he would teach the Rambler how to raise comb honey. The Rambler, who is an extractor man, was immediately all attention. We sat down to a little table, "And," said, Bro. L., "I prefer to secure the honey in these



TEACHING RAMBLER HOW TO "RAISE" COMB HONEY.

beautiful white four-piece Vermont poplar sections. Let the honey match the wood in whiteness. Then, sir, while a great many short-sighted bee-keepers are afraid there will be too many honey-raisers, I do really desire to make more; and I stand upon the broad platform of educating all classes, rich and poor, to raise comb honey. Now, what is more tempting than a pound of this pearly whiteness, with the aroma of an opening rose? You cut it into squares, and gently raise one of them on a fork; the jaw drops; the left eyelid quivers; the tongue advances, and, oh my! the sensation when honey and taste meet! Why, Mr. Rambler, I have educated my neighbors to such an extent that raising honey on a fork is obsolete. Some use a jack-knife, some a butcher-knife; one charming milliner uses a button-hook; another refined young beauty over on Cream Hill uses a toothpick; and as soon as I get Bro. Newman's honey almanac to operating, I



expect to call upon other Vermont apiaries to supply the great industry springing up here for the raising of comb honey. And, Mr. Rambler, had I the amount of extracted honey that you have, I would see the commission men in Tophet before I'd send them a drop. Just educate your neighbors to raising it with a spoon."



RAMBLER "RAISING" HONEY ON A SPOON.

This phase of honey-raising by everybody with forks, spoons, etc., pleased the Rambler immensely. He started right off home on a dog-trot, got a five-pound pail of honey and a few teaspoons, and, entering his native village, proceeded to give everybody a taste. We halted Sam and Jim, Polly and Jerusha and the children, for a taste of our honey. As a result, the remnant of our honey was soon all raised on spoons and buckwheat cakes. Now, we are also going to set that honey almanac to operating, and we expect to raise a regular "fewroar" in the home market. This is a fact thoroughly believed in by the

RAMBLER.

### THICK TOP-BARS, AGAIN.

THE EVIDENCE POURING IN; THEY PREVENT BRACE-COMBS, AND THAT, TOO, WITHOUT A HONEY-BOARD.

THE *Bee-Keeper's Review* for Jan. 10 is out, and a good number it is too. The special topic is wide and thick top-bars, and the prevention of brace-combs. The testimony collected in this issue very materially substantiates the testimony that has been brought out in our own journal. The whole thing summed up in a single sentence stands about like this: *To prevent brace-combs and to dispense with the honey-board, use top-bars  $\frac{3}{8}$  inch thick, 1 inch wide, and spaced accurately  $\frac{5}{16}$  inch apart.* A top-bar  $\frac{3}{8}$  inch wide, and bee-spaced apart, may largely if not entirely prevent brace-combs; but the extra  $\frac{1}{8}$  inch added to the width, so far as I am able to gather, makes a sure thing of it. The testimony has been so convincing that Bro.

Hutchinson says he is quite converted to thick bars. He says that, when Dr. Miller first intimated that the honey-board might be dispensed with, at the Northwestern Convention, in Chicago, it seemed to him "perfectly preposterous." And "yet," he says, "who can read the discussions in the present number without deciding that, in all probability, the honey-board can be laid aside?" And I must confess that I was very much surprised and pleased to note how favorable Bro. Heddon seemed disposed to be toward the heavy bars (see leading article last issue). We must give our Dowagiac friend credit for being progressive, even if the prospects are pretty bright for knocking out his slat honey-board. How pretty it will be for those whose hives are constructed like the Simplicity, and who can not very well use the honey-board between the extracting-supers, to be able to pull apart the top story from the lower one, without lifting the lower frames up *en masse*, simply by the use of thick bars! And still another thing: There is no sagging with such frames. That feature alone is worth the expense of the change, even if we do not secure that other grand feature, the prevention of brace-combs; and still again, Mr. Heddon says *straighter and better* combs are secured thereby. Is it going to knock out reversing too? Our whole apiary will be changed to thick top-bars, just as soon as the trial of a few justifies the introduction of more. Let me urge again: *Don't* try too many at once. After you have tested a few you can then act more intelligently; and don't be in too much of a hurry to break up your honey-boards into kindling-wood.

ERNEST.

SIZE OF TOP-BARS. DR. MILLER TELLS HOW WE CAN ALL EXPERIMENT FOR OURSELVES WITHOUT GOING TO ANY PARTICULAR EXPENSE.

I AM thankful for the amount of light thrown on this subject. It seems to be tolerably well established, that there have been quite a number of cases in which the size of the top-bar has effectually prevented the building of brace-combs. Of course, it is understood that too large a bee-space is not allowed; and, indeed, one writer in GLEANINGS claims that, if a bee-space of  $\frac{1}{4}$  inch is allowed, the thickness or width of the top-bar is not material. If all are right, then there are three ways in which we may succeed without a honey-board; viz.: By having a  $\frac{1}{4}$ -inch space; by having a top-bar  $\frac{7}{8}$  inch thick, or thicker; or by having a top-bar  $1\frac{1}{2}$  inches wide. It is to be hoped there may be enough experimenting next season to settle more fully what is most effective. In the meantime it may do no harm to discuss some of the things to be thought of in making experiments.

WHAT IS THE BEST SPACE BETWEEN TOP-BARS AND SECTIONS?

I have always used  $\frac{3}{8}$  inch, and I suspect it is a little too much. Still, with the slat honey-board, the  $\frac{3}{8}$  space has worked well, generally. It is probable that  $\frac{1}{4}$  inch between top-bars and sections might prevent brace-combs, provided the top-bars were not more than  $\frac{3}{8}$  inch apart; but I fear it would be a difficult thing to maintain for several years a space exactly  $\frac{1}{4}$  inch. The shrinking or warping of lumber would interfere, and, moreover, my bees have a habit of putting propolis in all sorts

of places, at least at certain times of the year. Even with the  $\frac{3}{4}$  space, I have sometimes had the entire space filled with propolis, and all my top-bars, I think, have propolis on top. With a  $\frac{1}{4}$ -inch space I should expect to have some top-bars and sections glued together. Still, this difficulty may not be so great in other places. Let us bear in mind, that what will succeed in one case may not necessarily succeed in another; and it may be well not to decide too hastily. The thickness and width of the top-bar may be changed in a few hives for experiment, without changing any hives. Strips nailed on the sides of top-bars may increase the width, and in that we may find whether top-bars  $1\frac{1}{2}$  inches wide, with  $\frac{1}{4}$  inch between them, will answer the purpose. To change the thickness of the top-bar, either the hive must be changed, or the depth of the brood-comb. Let me suggest for consideration a plan for trying a few top-bars of increased depth. Take a piece of tin one inch wide, and as long as your brood-frame, and nail it on one side of the top-bar, letting the edge of the tin come flush with the top of the top-bar. Now nail a similar piece on the other side; and if your top-bars are  $\frac{3}{4}$  thick the tin will cover  $\frac{1}{2}$  inch of comb, making your top-bars practically one inch thick. If it is desirable at the same time to make the width of the top-bars  $\frac{1}{2}$  inch greater, wooden separator stuff  $\frac{1}{16}$  thick may be used instead of the tin.

#### CLEATS FOR COVER-BOARDS.

And now a word with Ernest. I don't want to appear quarrelsome, but I feel pretty sure that, after you have tried side by side a sufficient number of the two kinds of cleats mentioned on page 20, you will change your mind, and—your cleats. According to my experience, the difference in convenience in handling the two kinds is sufficient to justify considerable trouble and expense in making a change. The only advantage you claim for the grooved cleat, if I am correct, is that it secures greater immunity from warping. You say, "A cover-board slid into a grooved cleat, and nailed, is a good deal less liable to warp than one simply dependent upon nails, I think." Let us see. What prevents warping? I suppose it is the strength of the cleat, and the firmness with which the cleat is held on the cover. I think you will readily admit, that a groove taken out of a cleat makes it weaker. The only question, then, is, does the groove hold the board more firmly than nails alone? Undoubtedly it does a little, if the cleat is equally stiff, and if the thin place left by the groove *does not allow the cleat to split*. About 8 per cent of my grooved cleats split before a nail was driven—a thing impossible with the others. You say you had a cover like mine, and it warped. Was the cleat the same size as the grooved cleats? I have two or three hundred that have been in use several years, and I have had no trouble from warping. The nails hold the cleats firmly in place; and on account of the greater stiffness and lesser liability to split, I think the plain cleats will allow less warping than those that are grooved.

C. C. MILLER.

Marengo, Ill., Jan. 4.

No, no, doctor, you do not appear quarrelsome. If you did so at times, I should know it was with the desire to get at the truth, rather than the desire to establish a point which you had previously put forth. I have talked with our man about grooved

cleats, and I told him that eight per cent of yours split. He seemed very much astonished. He said he had nailed up something like a thousand cover-boards, and not one cleat had split, and yet the groove is just a snug fit over the end of the board. Now, it must be, doctor, that you did not put the cleats on right. You can not drive it on, both ends at once, neither can you plow the end of the board, as it were, through the entire length of the cleat, beginning at one end. The proper way is to start the cleat at one end. If the board is a little warped, press on the bowing side, at the same time that you crowd the cleat down. If you put it on thus, I venture to say you will never have trouble. The cleat may be weakened a very small particle after the grooving; but we calculate that it is more than ample to prevent warping, even then; and I still think that such a cleat will hold a board truer than one simply nailed on the end. Another thing, the end of the board in a groove is better protected from the weather. A still more important consideration is, that the cover-boards for grooved cleats happen to be of just the right length to make a box to hold the inside furniture of five or ten hives, without crating, and this in the matter of saving freight is a considerable item. Were we to make a cover as you describe, it would spoil the unique arrangement of the bottom-board, and necessitate a large box around the inside furniture when they are shipped out.

ERNEST.

#### THICK TOP-BARS; NO BRACE-COMBS OR HONEY-BOARDS.

I notice in our last number of GLEANINGS that there is a good deal said about the width and thickness of the top-bars to our brood-frames. I notice, too, that some are getting a little sick of their honey-boards and queen-excluders (at least it looks that way to me), and I have felt just that way for four years. Now, about the top-bars. I have used thick top-bars for four seasons, and without honey-boards or queen-excluders, and I have yet to find any brood in my surplus combs, excepting about a dozen drone-cells in the bottom of one section. This was on a very strong swarm this season, from which I had taken nearly all the drone comb.

It is very seldom indeed that I find any brace or burr combs between the brood-frames and honey-crate, although my frames are only  $\frac{3}{4}$  inch wide, and spaced  $1\frac{1}{2}$  inches from center to center, leaving quite a space between the top-bars. Now, although I use this kind of frame, and have discarded honey-boards and queen-excluders entirely, and am not troubled much with brace-combs or brood in surplus cases, I really do not believe it makes any material difference whether the top-bars are one inch thick or half an inch, provided we have just the right space between them and our supers, and the bottom of our supers or crates are properly constructed; but as I have never used any other thickness for top-bars than  $\frac{3}{4}$ , I am unable to say what their use might bring about. One thing I am sure of; and that is, that we very seldom find brace-combs unless the bees find room for them, either by the sagging of frames or the improper adjustment of fixtures. I have 58 swarms of bees in my care—44 of my own, and 14 of my brother's, and



most of the frames look as clean on top as when they were put into the hive.

CHESTER OLMSTEAD.

E. Bloomfield, N. Y., Jan. 8.

From the testimony which we gather from others, I feel quite sure it is the *thickness* of your top-bars that has more to do with the prevention of brace-combs in your case than any nice adjustment of bee-spaces between the brood-nest and supers. Were you to change to top-bars  $\frac{3}{4}$  inch thick, you would, I am quite certain, be troubled with brace-combs. Bee-spaces alone, here, won't do it—at least, not in Medina. Read this:

WIDE TOP-BARS, BUT ONLY  $\frac{3}{8}$  INCH, NOT PREVENTING BURR-COMBS.

For more than 15 years I have used top bars one inch and  $1\frac{1}{8}$  inches wide, in frames spaced  $1\frac{1}{8}$  inches from center to center. The number of hives during this time has varied from 20 to 60. The thickness of the top-bars has usually been strong  $\frac{3}{8}$  inch, and the spaces at the ends and over the tops of the frames have usually been about  $\frac{1}{4}$  inch—sel-dom, if ever, more than  $\frac{1}{8}$ . How about burr-combs? Well, this kind of top-bar doesn't always prevent them. I think that I am troubled much less with burr-combs than I should be if I used a  $\frac{3}{4}$ -wide top-bar; but once in a while I find the supers fastened pretty solidly to the tops of the frames. I shall continue to use a wide top-bar, and shall also use a wood-zinc honey-board. R. M. REYNOLDS.

E. Springfield, O., Jan. 9.

Thanks, friend R. Your testimony helps very materially to substantiate the testimony of others; viz., *extra width alone* is not sufficient. *Extra width should be coupled with extra thickness*, to prevent burr-combs. One other thing is important; viz., the combs must be spaced accurately  $\frac{5}{16}$  of an inch apart. With accurate spacing the extra width *may be dispensed with*. E. R. R.

THICK TOP-BARS; NO SAGGING; CALLING FOR VOTES.

I shall gladly welcome an increased thickness in top-bars of brood-frames. But I fear  $\frac{3}{8}$  is too thick, as that thickness removes the supers so far from the brood-nest. I want them thick enough not to sag, and I want the metal corners retained. I do not want an all-wood brood-frame on the place. My idea is, that  $\frac{1}{2}$  or  $\frac{3}{4}$  would be thick enough for the metal-corner wired brood-frames. The frames I now get sag badly in spite of the wire, and leave too much room between the brood-frames and the supers. I want only  $\frac{1}{4}$  of an inch between the brood-frames and supers. I am not certain that an increased width of top-bars of brood-frames would be desirable; but if the majority of the bee-keepers vote for inch-wide top-bars I would fall into line and try them. But I want the other dimensions of the frames retained, so we can use them in the standard Simplicity and chaff hives now in use. You catch my idea by gluing or nailing a  $\frac{1}{4}$ -inch top-piece on the top of the present standard brood-frame. You will then have a  $\frac{1}{2}$ -inch top-bar, and all else the same. Then when we got them we could even up our other frames by gluing a  $\frac{1}{4}$ -inch bar on top of our old  $\frac{1}{4}$ -inch frames on hand, making all  $\frac{1}{2}$ -inch top-bars. I think the increase of the thickness of the top-bars of brood-frames to  $\frac{1}{2}$  inch is so desirable that you should adopt it as the standard without delay. The machinery for the

metal corners I suppose could be set to accommodate the  $\frac{1}{2}$ -inch-thick top-bars, and still let the frames hang in the hives as they do now. As to increasing the width to one inch, I am not prepared to vote either way just now.

By the way, how would it do to invite a vote of the readers of GLEANINGS as to width and thickness of top-bars of Simplicity or Langstroth brood-frame? I think, that, to prevent sagging alone would be argument enough to increase the thickness to  $\frac{1}{2}$  inch, aside from the theory of prevention of brace-combs. The increased cost would be trifling.

I feel sure we can help the brace-comb trouble by making the top-bars  $\frac{1}{2}$  inch thick, and reducing the space between the brood-frames to  $\frac{1}{8}$ , the same as the half-depth wide frames are spaced, and allowing only  $\frac{1}{4}$  of an inch between the brood-frames and supers. PHILO S. DILWORTH.

Bonney, Pa., Jan. 13.

No, friend D., the extra width alone will not answer, if I read correctly the testimonials of others. See R. M. Reynolds' statement, just preceding, and note the foot-note. As to the extra thickness removing the brood too far away from the supers, see what James Heddon has to say on this point, page 43. The old  $\frac{3}{8}$ -inch-thick top-bar, with the comb guide, separates the brood just as far away from the supers as the thick top-bars in question, without comb-guides. Besides, do we know positively that this slight separation of brood and supers in the case mentioned is detrimental?—You are correct. Thick top-bars do away with the sagging troubles, even if they do nothing more. I second your motion in calling for votes; but those votes must come from those who have used either the thick or wide top-bars, or both. The votes of those who have used only the thin narrow ones will be of no value. Yes, we want the frames to be adapted to hives already in use. Those we have already advertised are such. ERNEST.

In addition to what Ernest has said, I wish to add, by no manner of means put any thing on the *top* of your top bars; and do not do *any* thing that will change the outside dimensions of the regular frame. The top-bar can be made thicker almost as easily by slicing out comb, comb-guide, or both, on the under side, and bradding in a strip of wood of the desired thickness. Wired frames, if properly made, should not sag or change. However, as other things seem to demand a thicker top-bar, it may be, all things considered together, the cheapest and readiest method of any thing for preventing sagging.

THICK TOP-BARS; FURTHER FACTS, FROM H. ALLEY.

I mail you to-day a L. frame, such as we have used for a good many years. I think you and all who use the Simplicity hives would like them much better than the narrow top-bar frame. The top-bar sent is  $\frac{1}{4}$  narrow. It should be  $1\frac{1}{8}$  inches wide, and  $\frac{3}{4}$  thick. We use 10 frames in a hive,  $14\frac{1}{2}$  inches wide inside. For 8 frames, of course the brood-chamber must be reduced in width.

Wenham, Mass., Jan. 4.

H. ALLEY.

The frame came duly to hand. Thanks. Is this the frame that you have used so many years, and does it invariably prevent

burr-combs? We should think that top-bars  $1\frac{1}{2}$  in. wide, spaced in a 10-frame hive  $14\frac{1}{2}$  in. wide, would be so close together as to be rather difficult to get hold of.

THICK TOP-BARS AS AGAINST HONEY-BOARDS;  
BEE-SPACES OR NOT.

I am greatly interested in the thick top-bar brood-frame. Now, friend Root, if this will do away with the honey-board, so much the better. If they will, the frames should come up flush with the top of the hive, then the T tin should be just a bee-space; that is, the double part of it; then turn it upside down. This makes a bee-space on the under side of the crate, and does away with the tin keeping the sections apart, which has been a great fault with the T tin. Now get up something to hold the tins in place upside down. What do you think of this scheme?

W. D. SOPER.

Jackson, Mich., Jan. 11.

On account of putting on the cover, we should surely want a bee-space above the frames in the hive. If the frames came flush with the sides of the hive, there would always be trouble in adjusting the cover. It would kill bees, and make no end of trouble. We should prefer thin top-bars with a bee-space filled with burr-combs, rather than thick top-bars and no bee-space above them. Our section-holder in the Dovetailed hive obviates the objectionable upright in the T tin, and will also permit the use of open-side sections, and yet have the bee-space on top of the sections.

DOOLITTLE'S CAGING PROCESS OF  
FORMING NUCLEI.

NOT SUCCESSFUL FOR INTRODUCING.

FRIEND ROOT:—Several years ago Mr. Doolittle gave us a plan for forming nuclei, which seemed new and original, and thereby excited my curiosity. I refer to the caging process. We remember the plan very well, and I need not give it here. I have never had much need to use it; but liking to experiment and try new ways I have resorted to it quite a number of times since it was brought out. Two things were claimed for it: That the bees would not return to the parent colony at all, and that it was a sure way of introducing a queen. Neither one of these has proven true in my experience. At the time, Ernest made experiments tending to show that a portion of the bees did return, but I do not recall seeing reports adverse to it as an introducing process. I will say, whenever I have tried it the bees have been allowed to thoroughly fill, have remained caged in the cellar from four to six hours, until greatly excited, before inserting the queen, after which they have stood over night, and were hived early in the morning. Frequently every thing has worked nicely, except that probably a few bees always went back; but at times the queen was not kindly received. Twice I have found the queen most viciously balled when I went to hive the bees in the morning; and in each instance she had to be caged for two days before they were reconciled to her. Once she was immediately balled when introduced into the cage, and a perfect deluge of smoke liberated her for only the time being.

Last summer I received a Carniolan queen from

Dr. Morrison; and not having a handy place to put her, I resorted to the Doolittle "infallible." In the morning the queen was dead. I do not know whether the bees killed her or not. This is the only time I have really lost a queen by this method; but the ones before mentioned probably would have been killed had I not caged them. In working this plan, instead of starting nuclei I usually desired to start a small colony. I have caged a rather large number of bees. I have wondered if such a number would be as likely to be friendly toward a queen as would a smaller and more lonesome number.

Newton, Iowa, Jan. 10.

WM. L. DREW.

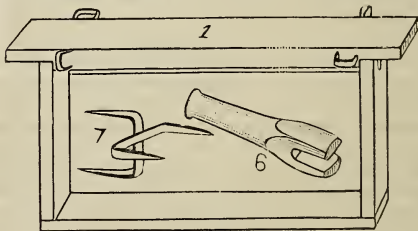
HANGING FRAMES AT FIXED DIS-  
TANCES FOR MOVING BEES.

A VERY SIMPLE AND CHEAP WAY OF DOING IT.

MR. N. T. PHELPS, a short time ago, asked if he should send a very cheap, simple, effective distance-keeper for hanging frames, remarking that we had been selling said distance-keepers for several years. Having a curiosity to know what it was, we requested him to send a few sample frames (or parts of them). We give his description below, with engravings, which we have had made from his samples:

Mr. Root:—As you request me, in yours of the 6th inst., to send you an explanation of the distance-keeper that you have been selling for several years, I do so at this time, and so there will be a good understanding of it. I send by this mail a reduced sample (No. 1) of the frame I use, showing how they are applied.

The timber is the true dimension, only each piece is cut shorter, to make it more portable in the mails, and it also shows the point at which they are driven. They are first started with a hammer, and the driving is finished with a set, or punch, with a broad flat end, perhaps one inch by  $\frac{3}{8}$  inch, with a slot cut across the face of the punch to the depth I wish the keepers to stand out. See Fig. 6. The sample is driven to space the frames  $1\frac{3}{8}$  inches. To drive them, lay the frame on a flat board, with the top-bar toward you. Drive one in the corner at



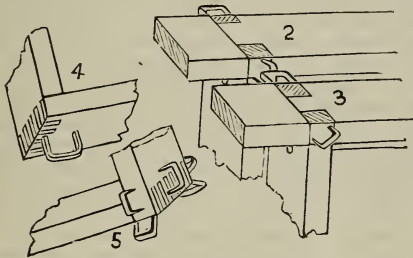
PHELPS' FRAME SPACED WITH STAPLES.

your left hand, then the one in the corner nearest your right hand, taking care that the long way of the keeper runs at right angles to the direction of the long way of the one first driven. Now turn the frame over, by keeping the top-bar toward you, so that the two end-bars change places. You will now see that you need two holes in your board to let the two keepers already driven drop into, while you drive two more exactly as you did the first two. If you drive the first left-hand one with the long way in the direction of the long way of the top-bar, do this one so, and the right-hand one in the direction



of the long way of the side-bar. It is a very easy and quick job, and takes longer to tell it than it does to do it.

These sample frames I have marked No. 1. My experience teaches me that they are all that is required on any hanging frame. In the last of July and first of August, 1888, I moved 50 strong colonies, heavy with bees, brood, and honey, on a wagon, eight miles, over roads newly worked, and with some steep hills, and not a comb was misplaced or broken. After the season was over, I moved eleven back that were literally crowded with honey, with the same result. In the spring I moved the other 39 back, when they were as light in bees and honey as at any time, and no combs moved or were bro-



SPACER ADAPTED TO THE ALL-WOOD SIMP. FRAME. ken. No. 2 is one end of the top-bar of Simplicity frame made by you, showing how they can be used on that frame. No. 3 is another way of driving them, but I do not like that way as well as the first one. They can be put on the bottom corners in just the same way, if wanted there; but I know of no good reason for wanting them on any good hanging frame.

No. 4 is a bottom corner of a Simplicity frame, showing how they can be used as a guide to prevent the crushing of bees. And if you wish to carry this "foolishness" still further, No. 5 will show how they can be employed on an invertible frame without projections—do away with all our metal strips and rabbets, and let it stand on its own bottom. All corners are to be ornamented alike. I think they would be a little better if they were made of No. 16 or 17 round steel wire, and perhaps  $\frac{1}{8}$  of an inch longer. N. T. PHELPS.

Kingsville, O., Dec. 9, 1889.

The staple-spacers may not be entirely new; but whether they are or not, the idea (or invention) has the elements of cheapness and simplicity to its fullest extent; and it may not be so far from being practicable either. It can be adapted to hives and frames already in use, even when the latter are filled with comb. Where bee culture is carried on to any considerable extent, a system of one or more out-apiaries is almost the inevitable result, and out-apiaries means *moving bees*. The hanging frame not fastened, although bees can be moved to and from out-apiaries on it, necessitates careful driving and good roads. Our men during the past season, in moving bees, could drive no faster than a walk, and that with extreme caution in places. With a couple of expensive men, one a teamster and the other a practical bee-keeper, to say nothing of a valuable team, slow driving, all because the frames are hanging and not

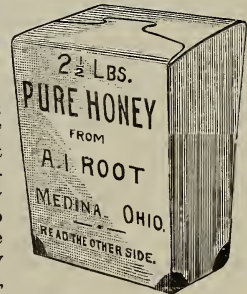
fixed, is expensive. To stop and stick up each frame in a load of 35 colonies, simply for the sake of driving fast afterward, is just as expensive. What we want is frames *always* fixed, always ready for moving at a brisk drive, and yet sufficiently movable to be readily manipulated in the hive. Friend Phelps comes very near hitting it; and while it may not be the best arrangement for hanging frames, it comes very near it. Perhaps a still simpler plan would be, to drive wire staples, half an inch wide, into the wooden rabbets,  $\frac{1}{4}$  inch apart, in such a way as to space each frame with a top-bar  $\frac{1}{4}$  inch wide,  $1\frac{1}{2}$  inches from center to center. This would require fewer staples. The same idea in various bungling forms has been before suggested; for instance, notching out the wooden rabbet. But the end-bars would become so stuck in these notches, by reason of propolis, as to be practically immovable; but the wire staple would be almost entirely free from this objection, besides being cheaper. On the other hand, this would make always a fixed distance of spacing. For wintering, it might be desirable to spread the combs. Again, the removal of subsequent combs would be just as difficult as the removal of the first. Phelps' arrangement would allow of wider spacing in winter, and after the first comb was out the rest could be removed easier.

Let's have suggestions; and in the mean time, let's think it over. We don't want any thing that will increase the expense of the frames more than 10 cents per hive. If honey could be sold for 50 cents per pound at wholesale, we might tolerate some of the expensive frame-spacers. ERNEST.

#### RETAILING EXTRACTED HONEY IN PAPER PAILS.

HOW 2600 LBS. WAS SOLD RIGHT AT HOME IN THIS WAY.

FRIEND ROOT:—I wish to add my mite to question No. 149. I send you by this mail a paper pail for extracted honey, that I think is just perfection. After having used glass and tin, I find, by two years' trial, that I shall not use either again. Of course, one must wait until the honey granulates, and then they are just as handy as so many bricks. I have sold nearly all of my crop of 2600 pounds, and could sell more than as much again on my home market at 25 cts. per pail, wholesale.



They look rather doubtfully at granulated honey at first; but after the first trial pail they usually come back after more, as my honey was ripened by tiering up, and is very thick and nice. They cost \$15.00 per thousand at the factory, complete, like sample, except waxing the corners. This is not necessary if the honey is drawn into them just the last thing before it hardens.

I think if they were more widely known, the home markets would be greatly improved, as the package adds nothing to the price of the honey per pound. This is the point with me, as with J. A. Green in his answer, where he says, "The less we have to pay for a package, the more honey we can sell put up in that package."

Then, a case holding 20 pails or an even 50 pounds is a neat thing to set in a retailer's store, with the little tape ready to hook over a customer's finger.

THE REESE BEE-ESCAPE, AND HOW IT SAVES LABOR IN RIDDING BEES FROM EXTRACTING-COMBS.

I met Prof. Cook at our Farmers' Institute, and surprised him very much by suggesting the use of the Reese bee-escape in taking off cases of extracting-combs as well as sections. Now, I can hardly believe that I am the only one who has made this use of the escape, as honey is honey, and why not one kind of a super as well as another.

I put them on in the afternoon; and the next morning, before breakfast, I can have two or three days' work done (with the aid of a wheelbarrow) in carrying in cases ready to extract. This is where the poetry of bee-keeping comes in, as there are no frames to handle, no bees to brush off, no robbers, no stings, no loss of temper, etc., that are the usual accompaniments of the old way, especially in the fall. Sometimes on a warm summer night they would not be quite all down; but by taking out one of the side combs, then spreading the rest and leaving them one day longer, is quite sure for them all.

We all owe Mr. Reese a debt of gratitude for the invention, for I don't think there is a better or easier way of getting honey free from bees, or one with as few faults. I know this has been described a number of times in GLEANINGS, but the reader can hardly realize what a good thing it is until it is tried, and made to work as well as it has with me.

H. P. LANGDON.

East Constable, N. Y., Dec. 5, 1889.

Very good, friend L. We have had the paper pails, such as you show us, for two or three years; but our customers do not take kindly to them. Very likely, however, it was our fault in not starting them right. By some awkwardness, the tape handle to lift it by has been omitted in the engraving. I would suggest that your honey be first allowed to candy; then melt it, and pour it into the pails. Honey once candied is more likely to candy again, and, if I am correct, it becomes harder next time. Ours did not get real hard, and the pails became daubed.—Your remarks in regard to Reese's bee-escape for extracting are certainly a very great item; but your description is not quite clear. If you fasten the bees out of the upper story containing filled combs for half a day, or a day and a half, there must be quite a loss, especially where colonies are bringing in four or five pounds, or even more, per day. Where you speak of two or three days' work, I presume you mean two or three days' work in brushing of bees and handling combs in order to do this. You have no handling of the frames except to uncap and place them in the extractor.—Getting rid of robbers and stings is certainly a wonderful achievement. Why, the invention is a wonderful stride in the business of extracting. If the process has been de-

scribed in GLEANINGS, for some reason I did not get hold of it before.

## HEADS OF GRAIN

FROM DIFFERENT FIELDS.

ANOTHER GOOD TESTIMONIAL FOR STINGS AS A CURE FOR RHEUMATISM; BUMBLE-BEE STINGS PREFERRED.

I have seen the bee-sting cure for rheumatism discussed in GLEANINGS to a considerable extent, pro and con; and having had an experience of my own, I thought I would tell it. In 1887 and '88 I was severely afflicted with sciatic rheumatism, and of course I had a great many cures recommended, and I read of many. Among them was the bee-sting cure. I was living in Texas at the time. I went to the famous hot springs in Arkansas, and spent a month there, and received some benefit. I then came to my old home in Ohio; my rheumatism still troubling me severely—so much so that I resorted to opium for relief; but remembering the bee-sting cure, I tried that with good results, as I am and have ever since been free of sciatica. I attributed it to bee-stings; but I want to say I did not confine myself to the honey-bee alone. I used the honey-bee, the wasp, yellow-jacket, hornet, and bumble-bee; and I must say, when they can be had I should prefer the latter, especially the smaller ones, as they will insert their medicated needle a dozen times or more quicker than you can say Jack Robinson. You can easily take them between your thumb and finger, and they will work their medicated instrument as fast as you can move your hand, and leave a red-hot streak behind, and you will realize as good if not better results from the bumble-bee; and then we use that which is of but little benefit to us—at least not as much as the honey-bee. The only advantage of the honey-bee is, they can be had at any time of the year, and are always primed to do their work. I tried some the other night, when I felt rheumatic pain in my knee. My wife went out and got some that failed to get into the hive. She brought them in, and we warmed them a little and put them in a position to do their work; and I must say they did it with the relish of a real live bee. I will say, the result was the same from any of the insects named.

Maxville, O., Jan. 6.

D. HENRICKS.

And so, friend H., it is really true that bee-stings do give relief; and not only the stings of honey-bees, but of wasps, yellow-jackets, and hornets. May the Lord be praised for this testimony that is coming so thick and fast in regard to bee-stings as a remedial agent! So bumble-bees sting repeatedly, without losing their sting, do they? If I had ever heard of it before, I had forgotten it. But it seems to me that their stock of "medicine" would run out sooner or later if they kept on in that style. No wonder you likened it to a "red-hot streak." By the way, old friend, haven't you an unusual amount of grit, to sit still and take bumble-bee stings after that fashion? You should have had half a dozen schoolboys standing around to enjoy the fun. Who can say that honey-bees and bumble-bees were not intended by the great



Creator, to furnish pure unadulterated medicine, right from nature's laboratory, already furnished with an instrument, fashioned beyond any thing that human hands can make, to place the remedy right where the disease is located?

SAN DIEGO CO., CAL.

We copy the following from the *San Diego Union*, Jan. 5:

Although San Diego has by far the largest number of hives, the amount of honey produced is not proportionately as large as the output in a number of other counties. This is doubtless owing to the fact that the industry in this county is young as compared with that in other sections; but more satisfactory results may be hoped for as keepers become more acquainted with the requirements and proper management of bees in this climate. The pasturage for bees in the southern portion of the State is white, black, and button sage, alfalfa, alfileria, button-bush, etc., while the honey crop in the northern sections is gathered principally from wild clover, yellow sage, holly, California lilac, incense cedar, and alfalfa. About two-fifths of the hives in California are of the Langstroth style, the remaining three-fifths being Harbison, Merriam, and American hives. It is computed that two-fifths of the honey crop of the State was gathered from the various kinds of sage, one-fifth from alfalfa, and the remaining two-fifths from the various other kinds of wild bloom.

A statistical table gives the number of bee-keepers in San Diego as 100; hives, 17,000; pounds of honey, 260,000. Total bee-keepers for the whole State of California, 517; total hives, 64,630. Total honey, 1,092,900. I am inclined to think the above is hardly complete; for, judging from my visit, I think I could certainly have found more than 517 bee-keepers, without any trouble; for the State of Michigan, as reported in another column, has 4187 bee-keepers. Very likely, however, there may not be more than 517 in California who number their colonies by the hundred.

#### THE STANLEY EXTRACTOR.

I see you want reports from those using the Stanley extractor. I have used one for two seasons, and I like it very well. Last summer I extracted between 11,000 and 12,000 pounds of honey with it. I think it would improve it if it had a gear on it. It takes a man to work it. It will not do for a woman. My bees did well. They paid better than the farm. I am a farmer as well as a bee-keeper.

#### NOT IN FAVOR OF SKUNKS.

I see in the last GLEANINGS that Mr. France is in favor of skunks around the house. I am not in favor of them. A year ago last summer I got up just at daylight, and found 37 nice chickens dead that a skunk had killed. Skunks will suck eggs, all they can find.

CHAS. BLACKBURN.

Lamont, Iowa, Jan. 6.

STRAWBERRIES IN BLOOM; POLLEN FROM CEDAR; CORN UP, AND APPLE-TREES LEAVED OUT.

The honey-flow was almost a failure until very late in the fall. All Italians secured enough from red clover to winter on. Blacks are dying out, or, rather, starving out, all over the county. I went into winter quarters with 140 two-story hives filled with bees and honey. All are in fine condition; and to-day they are bringing in pollen with a rush from the cedar. Last year the first pollen was gathered from the cedar Feb. 14th. We are having a remarkable winter—only one little freeze the middle of November. At least half of the farmers in this

county killed their meat, and to-day there are thousands of pounds spoiled. My strawberry-bed is full of bloom, as in spring. Berries are as large as buckshot. Apple-leaves are as large as a quarter. I saw some green corn to-day in my garden, 10 inches high. Thermometer is 75° this evening; wind has blown from the south and southwest for three weeks.

R. B. WILLIAMS.

Winchester, Tenn., Jan. 7.

#### EARLY SEASON IN NORTH CAROLINA.

I write you an item of news from the old North State. Dec. 28 my bees were coming in with loads of pollen; again on January 4th until to-day, when they are coming in with their baskets full of pollen from the maple timber, which is in full bloom at this date. This is at least one month earlier than usual. I took a peep into my hives to-day, and found the queens laying, and some brood started. So far this winter we have had but a few days of cold weather. Irish potatoes are up in the open ground, four inches; every thing is putting on the appearance of spring. The honey crop of last year was light in this section, owing to continuous rains. We hope for a better honey season this year. The queen of my hive appreciates GLEANINGS very highly.

B. C. GRIFFITH.

Griffith, N. C., Jan. 7, 1890.

#### A SHRUB WHICH BLOOMED AND YIELDED POLLEN TO THE BEES IN MASSACHUSETTS DURING CHRISTMAS.

I send a small branch of a hardy shrub now in bloom out of doors; and, strange to relate, I saw several of my Italian bees gathering pollen from the bloom to-day. Only think of it! a hardy shrub in full bloom in January, here in Massachusetts, within 25 miles of cultured Boston! It was in bloom Christmas day, and the bees worked over two hours on it that day. It will remain in bloom until April, as it did the same last winter; but I did not see any bees on it then. It is very fragrant, and can be noticed several feet away from the bush. It is a Japanese shrub, and is called Chapman's honeysuckle. It is a symmetrical shrub, now about 5 feet high. I procured it a few years ago of an importer of novelties and rare plants.

West Mansfield, Mass., Jan. 6. W. O. SWEET.

We believe, friend S., that the Japanese honeysuckle has been discussed in our back volumes.—We, too, have been having a wonderful winter; but at this date, Jan. 22, the weather has changed, and the thermometer is now only 5 degrees above zero.

#### TO LEVEL THE GROUND OF AN APIARY.

Next April I wish to plow, harrow, and roll the ground that my 50 colonies of bees now stand on. Of course, I shall have to move the bees first. Now, when the bees are placed back on said ground can I place them to suit myself, or will the hives have to be placed on the same stand they occupied before plowing?

BEE-KEEPER.

Friend Bee-keeper, I scolded a little because you did not send your name; but your question may be worth something to others as well. You can put your hives in a different position if you choose, but there will be much greater risk of loss. They may settle down so as to divide the lost bees pretty fairly; and, again, they may overrun certain colonies, kill the queens, and have no end of fighting. I would fasten them all

in the hives during the operation, choosing a day cool enough so they will not be likely to smother, and then get them all back into their proper places as quickly as possible, before letting them out. If you had told us where you live, we could judge better as to what the weather may be in April; but, as a matter of course, they will fly before removing, and are pretty sure to immediately afterward.

## REPORTS ENCOURAGING.

SIX YEARS OF SUCCESS IN BEE-KEEPING; A NET PROFIT OF \$1684.

As this is a holiday I thought I would send along to you a report of my six years' success in bees and honey, as the years of failure are to come as yet. Now, friend Root, what I have done in these years, I don't say everybody in this wide world can do. It would be an impossibility without the gifts and qualifications. These gifts, in the first place, are love, then patience, and continual looking for the reward. I believe this is a special calling for the Lord's children, not so much for the money as for the pleasure in looking after and caring for one of the smallest of God's created insects for the sustenance of man in this last age of opposition to the truth as it is revealed in Christ Jesus.

By legal calling I am a farmer and dairyman.

I added one swarm of bees to this calling in 1884. From this I received 40 lbs. of honey, and increased to three colonies in the fall, at an expense of \$12.

In the spring of 1885 I added two more colonies of Italians, which I increased to 19 in the fall, with 500 lbs. of honey. Expenses were \$38.00.

In 1886 I began with 19 swarms, and increased to 43 in the fall, with 2000 lbs. of honey. Expenses were \$76 00.

In 1887 I began with 19 swarms, having sold 20; three died; one queenless. I increased to 35 in the fall, with one ton of extracted honey. Expenses were \$72.00.

In 1888 I began the season with 30 colonies, having sold some of the increase. I increased to 43 in the fall, with 750 lbs. of extracted honey. Expenses for the season were \$90.00.

In 1889 I began with 40 colonies, from fine to medium, all in chaff hives, and increased to 70 in the fall, with 7200 lbs. of extracted honey.

In summing up these six years, or seasons, of bees and honey, I find my books give a record thus:

Total sum for outlays, cash, throwing work in, is.....	\$ 347.
Total proceeds from bees and honey.....	1401.
With 70 stocks of bees valued at \$9 00 per colony.....	630.
Total.....	\$2031.
Deduct outlays.....	347.

For anxiety and care of bees..... \$1684.  
Townsend, Ont., Dec. 25. D. JEFFREY.

Well done, friend J., not only as a bee-keeper, but as a man and a Christian, in recognizing and making use of the gifts bestowed upon you by the great Father; and I especially commend the point where you mention love and patience as a qualification for a bee-keeper. To succeed with bees you must love them; and to succeed with strawberries you must love the plants.

Mind you, I say *plants*. You can love the berries too, if you choose; but the main thing is to have a real genuine love and affection for the beautiful, bright, energetic little plant that God has given us. Such a love not only helps you to succeed, but it helps you to be happy, and to enjoy your work. Show me the man who has fallen in love with strawberries, and I want to get hold of his hand, and call him brother, and just so with honey-bees.

4200 LBS. FROM 50 COLONIES.

I had 50 colonies and one weak nucleus, spring count. I secured 4200 lbs. comb honey, as near as I can get at it, and I can come pretty near, for I shipped the greater part of it. I increased to 68 colonies and 10 nuclei. Scarcely any increase was allowed until after the honey harvest. Then I formed nuclei, and queened them with those cheap hybrids advertised in GLEANINGS, and they were nice and prolific. I got some from Connecticut, Arkansas, and Illinois. Two died in transit, which were replaced. Those men acted honorably.

E. B. MORGAN.

Cleveland, Lucas Co., Iowa, Jan. 13, 1890.

## NOTES AND QUERIES.

We solicit for this department short items and questions of a practical nature; but all QUESTIONS, if accompanied by other matter, must be put upon a SEPARATE slip of paper with name and address.

STATISTICS OF THE HONEY INDUSTRY IN MICHIGAN.

We clip the following from the *Saginaw Courier*:

The returns of supervisors show 4487 bee-keepers in the State, and 35,513 colonies of bees in the spring of 1889. The honey product of 1888 was 559,802 pounds of comb and 97,600 pounds of extracted honey, with 7111 pounds of beeswax.

A HEAVY HONEY-DEW.

There was a heavy honey-dew in this section of country about the middle of September, and then there was another one in December, lasting up to Christmas. It was just dripping from the pines, laurels, and ivies.

MRS. C. L. PENLAND.

Lavinia, N. C., Jan. 6, 1890.

POLLEN FROM SOFT MAPLES.

To-day a large soft-maple at our back door is in full bloom, and neighbor Kloer's bees are just making things hum, gathering pollen and honey. What's the use of living in Florida?

Terre Haute, Ind., Jan. 11. CHAS. H. PHELPS.

THE MILDEST WINTER IN 13 YEARS.

We are having beautiful weather, and bees are having fine flights, gathering pollen in full force from soft maple. We are having the mildest winter that has been for years. I have never known bees to work as early in the season as this since I have had any, and that is 13 years.

LOUIS WERNER.

Edwardsville, Ills., Jan. 11, 1890.

HONEY FROM THE MAPLE IN FLORIDA.

Our bees are doing wonders. They have filled the hives full of honey the last two weeks, actually crowding the queens for brood space. They are making ready for swarming, and are hatching drones in many of the colonies. This honey-flow is from the maple, which commenced to bloom about three weeks ago.

J. CRAWCRAFT.

St. Francis, Fla., Jan. 3.



## POLLEN IN JANUARY.

Our bees are bringing in pollen from the alder to-day, one month earlier than I ever remember of their doing before. S. R. NEAVE.

Hughesville, Md., Jan. 5, 1890.

## NEW HONEY IN DECEMBER.

We have May weather here in December. I could extract 5 gallons of new honey, for I have plenty of combs that are about ready to seal, that were perfectly empty ten days ago, and a plenty of brood in all stages, from the egg to hatching.

J. W. TAYLOR.

Ozan, Hempstead Co., Ark., Dec. 26.

## BEES GATHERING POLLEN AND HONEY IN DECEMBER.

My bees and my neighbor's have been gathering pollen and honey for the last week, Christmas not excepted. They are roaring in the maples to-day. I looked at a hive of mine yesterday, and found young bees and eggs plentiful. I should like to hear from some one further south on this question. I should like to hear from friend Root also, to hear what he thinks the result will be next spring.

C. S. HACKWORTH.

Oliver's Springs, Tenn., Dec. 27, 1889.

## A GOOD QUESTION.

Do bees always gather their entire load of honey or pollen from one kind of bloom? I have watched them closely for two years, and have never seen the first bee go from one flower to another kind to finish.

J. P. RALSTON.

Uniontown, Kan., Jan. 9.

[I believe that bees usually confine themselves to one flower, but quite a number of exceptions have been reported. During a time of drouth, when the bees are hunting here and there to see what can be found to enable them to turn an honest penny, they certainly hover around and examine a great variety of flowers. When a bee is loading up, however, as a rule it takes the same plant.]

## A QUESTION FOR DOOLITTLE.

Mr. Doolittle's article, on not raising drones, is very fine indeed. But he does not tell us what to do when we take out the frame with a lot of drone-cells, and also lots of worker brood in the same comb. We don't want to hang such up to dry, do we?

J. W. SMITH.

Moscow, Vt., Jan. 6, 1890.

[Mr. Doolittle replies:]

The only thing to do in this case is to cut out the drone brood and fit worker comb in its place, unless you have weak colonies at such a time that the frame of brood—minus the drone—can be set into. The combs should be looked after in early spring, before there is much brood in them.

Borodino, N. Y., Jan. 9.

G. M. DOOLITTLE.

## QUEEN-EXCLUDING SEPARATORS.

Would not metal separators be better if perforated like the zinc you make? I think they would answer the same purpose, and be more convenient for the bees.

F. E. THOMPSON.

Tiskilwa, Ills., Jan. 8, 1890.

[There would be no particular advantage in separators perforated so as to be queen-excluding, over separators perforated with larger holes. Besides, the first cost would be too much. Comb honey does not sell at a price to warrant such expense in the supers. And, by the way, who is prepared to say that perforations in separators are of any real advantage? We have made perforations of all sorts and sizes, for years past, and for a great many different parties; but my impression is, one after another is dropping the perforations, and going back to plain wood or tin. Am I right, friends?]

## OUR QUESTION-BOX.

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION 153.—a. What sort of hive cover do you prefer—that is, should it fit upon the hive telescope fashion? b. What distance above the brood-frames should the cover-board be when on the hive? c. Is it an advantage to have the cover five inches or more deep, so that the cushion or honey-case may be used under it? d. If you use a deep cover, or a cover more than a bee-space above the frame, how do you prevent the building up of burr-combs at the approach of the honey-season, before putting on the surplus cases?

Plain board. No. b. Scant  $\frac{3}{8}$  inch. c. Think not. d. Don't any more.

Michigan. C.

A. J. COOK.

a. That is my style of cover exactly. b.  $\frac{3}{8}$  inch. c. I think not.

Ohio. N. W.

H. R. BOARDMAN.

a. A plain board, well cleated at the ends. b.  $\frac{1}{4}$  inch. c. It is no advantage, at least here in California.

California. S. W.

R. WILKIN.

a. A plain board, cleated at the ends. b.  $\frac{1}{8}$  of an inch. c. No advantage that is not greatly overbalanced by the disadvantages.

Illinois. N. C.

J. A. GREEN.

a. I prefer to have the cover fit upon the hive telescope fashion. b. About  $\frac{1}{8}$  inch. c. It is. d. I put on my surplus cases before the honey-season is well opened.

Wisconsin. S. W.

GEO. GRIMM.

Our Quinby frames rest on the bottom-board; a cap with cover nailed on fits down over the frames, resting on the bottom-board. We use a quilt between.

New York. C.

P. H. ELWOOD.

a. I so use my cap or hood, which is 8 inches deep. b. I use a bee-quilt over the frames when the sections are off, together with a sawdust cushion. c. I so consider it. d. As at b.

New York. C.

G. M. DOOLITTLE.

a. Yes. b. We use a honey-board directly over the bees,  $\frac{3}{8}$  of an inch above the top of the frames; then our hive top, or cover, is 6 inches deep above the honey-board. That gives room for a cushion over the honey-board, under the cover, for winter.

Wisconsin. S. W.

E. FRANCE.

a. I use an 8 or 9 inch cap. c. Yes, more than 5 inches; from 7 to 10 inches, so that, in the early season, the cushion may be used over the honey-case. d. It is time to give bees some surplus room whenever they build comb above the brood-chamber.

Illinois.

MRS. L. HARRISON.

a. For my style of hive, with the frames even with the top of the body, I use a cover with a two-inch rim under the cover-board. b. That depends upon the hive; from a bee-space to such distance as best suits the bee-keeper. d. See a. I don't prevent it.

Ohio. N. W.

A. B. MASON.

a. I use a cover with a 2 inch space, like the lid of a trunk, because it makes a dead-air space, which prevents the too great heat of the sun on the combs. d. By using enamel cloth.

Louisiana. E. C.

P. L. VIALLO.

After much experience with telescope covers I have settled upon a flat cover like the Dovetailed, only the under surface is entirely flat. I don't like the cleat projecting downward. b.  $\frac{1}{8}$  or  $\frac{3}{8}$ . c. I think the disadvantages overbalance the advantages.

Illinois. N.

C. C. MILLER.

The covers of my hives are calculated only to turn the rain. The covers for the brood-nest and the honey-boxes are the same, and independent of the outside cover. The outside upper story is part of our hive, like the outside cover. They protect the arrangement of the surplus honey inside, whatever that arrangement be.

Ohio. S. W.

C. F. MUTH.

a. No; no telescoping business whatever. You can not handle the hives rapidly with the telescoping or beveled arrangement. b. Scant  $\frac{3}{8}$  inch. c. No; you should use no cloths, quilts, or any thing of the kind, in connection with your cover. Use a flat cover with the proper bee-space between it and the tops of the brood-frames. d. I do not use any such cover. Those who do use the pestering and annoying quilts or cloths must manipulate bees more slowly.

Michigan. S. W.

JAMES HEDDON.

a. I use a gable roof to my hive-caps, which rests on rabbets. I do not like to have covers set over the hives telescope fashion, as one is too liable to disturb the bees when removing the cap. b. I believe  $\frac{1}{8}$  is the proper distance. I have experimented somewhat in this matter. c. Yes. d. By using a honey-board or a brood-box cover as called by some, inside the cap. We do not all call things by their right names. What I call a honey-board is what some call a cover; and what some call a honey-board I call a queen-excluder. Which is which?

Vermont. N. W.

A. E. MANUM.

The telescope cover is better than the bevel edged; but a flat cover resting on a level-topped three-inch wall is better yet. b. Depends on the kind of fixtures used. I like the top-bars just level with the top of the hive. c. The cushion on top is a valuable addition when wintering outdoors; but it can be used without deep covers—both with an upper story and without. d. My supers go on in spite of the burr-combs, unless they have got very tall. In that case I cut them off and take my pay in wax.

Ohio. N. W.

E. E. HASTY.

a. I prefer a flat cover, fitting evenly on the top of the hive. b. About  $\frac{1}{8}$  of an inch; if any thing, less instead of more. c. If you winter outdoors, packing only on top, it might be an advantage; but for such packing, an extra case can be substituted. The advantage, we think, would be in favor of the extra case.

d. Where a deep cover is used, and enamel cloth well down on the frames, burr-combs are not built to any extent. If the enamel cloth is removed frequently, burr-combs will be built, and will have to be broken down.

New York. E.

RAMBLER.

a. Most of our Gallup hives have covers nailed on two cleats, the length of the hives. The cleats are one inch thick, using lumber  $\frac{1}{2}$  inch in thickness. The grain of the wood runs across the hive, making a strong and light cover. b. We aim to have ours  $\frac{3}{8}$  inch. c. I should say no, unless to cover the comb-honey arrangements. It might pay in cool seasons, in the production of comb honey. d. We do not let ours have room above the brood-frames until surplus arrangements are on.

Wisconsin. S. W.

S. I. FREEBORN.

a. We prefer the cover larger than the hive, and resting on square slats nailed outside. The combs are thus better protected against rain and moths, whose eggs are laid from the outside, where the propolis is in reach of the female moth. b. Our cover is 8 inches deep, so as to give room for every emergency; for instance, in feeding bees; to accumulate straw, sawdust, or dry leaves on the top of the combs for winter; to protect the surplus boxes, etc. d. As we put on the frames, an oil cloth covered by a straw mat; and as these rest on the frames, the bees have but little if any occasion to build any brace-combs, or burr-combs, as they are called, above. It is when there is a space above the frames that the bees build these combs.

Illinois. N. W.

DADANT & SON.

a. Nearly all bee-keepers prefer such hives as they have become accustomed to using; and for that reason, if no other, I prefer the old-fashioned telescope cover, at the same time fully appreciating some of the objections to them. I used a few flat covers during one season only, and they were on ill-made hives; so my judgment, as between those two styles, is of little practical value. I have had in use, during the past two years, several hundred covers, 2 inches deep, fitted on beveled-edge hives, and I very decidedly dislike them. b. From 2 to 6 inches, depending somewhat on other fixtures of the hive. c. No, not as a rule. d. When using covers more than a bee-space above the frames, enameled cloth is almost an absolute necessity for the purpose indicated.

Cuba.

O. O. POPPLETON.

If I am correct, the present general preference seems to be for a flat wooden cover resting on the top of the hive, so as to come just a bee-space above the tops of the frames. I used a similar arrangement nearly twenty years ago; but the workmanship was probably poor, for my covers warped, and robbers pushed their way under, so that I then decided I never wanted any more of that sort. A good many are now using eight-frame hives, like our new Dovetailed hive, and this makes it much easier to have covers that fit bee-tight, because a narrow board is used, and it is not so difficult to crate it so firmly that it can not be warped. The covers that made me so much trouble, set over the second story of the old Langstroth hive; and as this second story was wide enough to slip over the ten-frame lower story, it took a pretty wide board for a cover. I believe we are indebted to friend Heddon—at least to a considerable extent—for the new order of things in the matter of covers. With the flat cover, enamel cloth, quilts, burlap, and every thing of that kind, can be discarded, except when we prepare the bees for winter.



## SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

That art on which a thousand millions of men are dependent for their sustenance, and two hundred millions of men expend their daily toil, must be the most important of all—the parent and precursor of all other arts. In every country, then, and at every period, the investigation of the principles on which the rational practice of this art is founded ought to have commanded the principal attention of the greatest minds.

JAMES F. W. JOHNSTON.

### IN WHAT SHAPE SHALL WE MAKE OUR GARDEN?

THIS question comes to me over and over. I suppose the market-gardener, or he who raises garden-truck solely for the money there is in it, is not expected to pay very much attention to the *looks* of the premises. Well, even if this be true, a great deal depends on how the garden is laid out. Not only for looks, but for the sake of economy, there are certain things that must be carefully considered. For instance, early cabbages, early peas, early sweet corn, and quite a lot of these things, come off the ground at about the same time. Now, if you could put them all together side by side, and clear the ground of them all at once, cover it with manure, plow it, harrow it, furrow it, it would be a great deal cheaper than if you were obliged to take a team and the tools on to three or more separate strips. I have sometimes had a little strip of ground vacated; and as I did not wish to lose the use of it, it was prepared all by itself for another crop. But the strip was so small, that getting out the team and tools to get it ready was more bother than it was worth; therefore we wish to have these things, that mature about the same time, all together as much as possible. A good many will be very much averse to fussing with little patches, at all; but one of the hardest lessons I had to learn was to avoid getting *too much* of a thing all at once. For instance, for three successive seasons we had more early peas than could be disposed of profitably. The price went away down to ten cents a peck, or less, and everybody got tired of them. When we get our ground all ready to sow peas with a grain-drill, it seems a hard matter to go just the length of the ground once and back again, and stop. But in our locality that is just about enough for the time being. Our nice ground is about 30 rods long. Last season we found a strip on one side that was dry enough to work fairly by the first of April. We prepared it nicely, with great pains, then took our seeds to the field with the grain-drill, and sowed as follows: With Alaska peas first, we went up and back again. The same thing with American Wonder, and the same with Stratagem. As a result, we had just enough Alaskas to supply the demand, at 40 cents a peck. Just as the boys began to say they would have to sell them cheaper, the American Wonder was fit to pick; and as the quality was so much better, they went off readily at the same price. When the American Wonders were gone, the Stratagems came in; and as these were fully as good as the American Wonder, and very much larger (less work to shell them, you know), they also brought 40 cents, without

trouble. Later sowings of Stratagems were made at proper intervals, and I may say we had peas from June until frost, and almost every kind of pea brought 40 cents a peck. This was because we did not have such a surplus as to at any time *overstock* the market. Before sowing our Alaskas with the grain-drill, perhaps I should mention that we put in a little patch by hand on a southern slope. These came in just before the long rows of Alaskas. Most of these sold for 50 cents a peck. Now, at the same time we put in the three different kinds of peas, we went through once with the grain-drill, with Corey's Early corn; we then came back with Golden Wax beans; then a piece was left for early cabbage. Next to the cabbage we put Early Ohio potatoes, most of them started in the greenhouse. This took about an acre of ground, and this acre was vacated almost at the same time, and was fitted for other crops all at once. Now, while we do all this we want to manage to make also a certain *rotation* of crops; that is, we do not want to have the same thing on the same ground year after year. It is said, however, that onions do just as well, or even better, on the same ground; and some one has said that lima beans do just as well year after year on the same plot. I am inclined to think this may be so, for we have a piece of clayey upland that always gives us a big crop of lima beans; but if we try them on our rich creek-bottom land, we have lots of vines but very few pods that get ripe. Now in regard to looks.

A garden looks very pretty made up of long rows of different kinds of vegetables; and I think it looks enough better to have complete whole rows—no halves nor quarters. When sowing with a grain-drill we put *almost* enough seed into the drill to go through; then we keep careful watch, and put in a handful at a time, to make it hold out. A *good full stand* of any crop also presents a pleasant appearance to the eye. The only way to secure this, that I know of, is to put your plants pretty thick, and thin out the surplus. This is a task, I know; but we can, by running the drill empty on smooth hard ground, by repeated trials, set it to sow just enough and no more.

In order to get on the ground to draw manure, bring on the tools, and gather the crops, we need some permanent roads. I have many times decided that I would have a roadway clear around the outside of the ground. At the ends of the rows this roadway makes a nice place to turn around with the horse and cultivator. On the *sides* of the long strip you lose some ground; but I am inclined to think that it pays. If the piece is large, you also want a road through the center. Then a road at right angles is also very convenient, and it helps to make the ground look tasty, as well as avoids the necessity of tramping down crops. But this crossroad is a nuisance when you come to cultivate. I know you can jerk up the cultivator as you come to the road, and then drop it as you get across; but more or less dirt is pulled into the road. I have sometimes had a man take a shovel and clear the road out after every cultivating; but this is

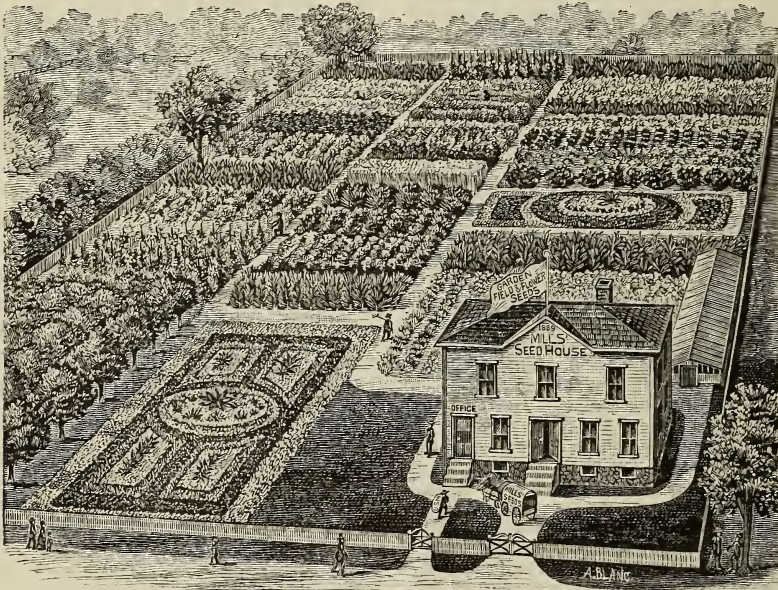


somewhat expensive. In the same way, after running the manure-spreader over the ground, I have gone to the expense of shoveling out the roadways. With strawberries, raspberries, currants, etc., we have to meet the same thing. I have been so much pleased with the little sketch of the grounds of one of our seedsmen, that I asked him to loan the cut to me. Here it is.

Well, friends, what do you think of it? Wouldn't almost anybody like to be a seedsmen if he could have a seed-house like that, with grounds and garden beyond? The cut is the work of a professional horticultural engraver, Mr. A. Blanc. He has wonderful taste in that direction. Perhaps on this account this pretty picture is somewhat of an ideal one. We do not know how much ground Mr. Mills has laid out thus tastily; but, judging from the human figures, covered wagon, and seed-house, there must be from one to two acres. I think I would go a

looking tracts of run-down, deserted gardens. No *climate* in the world will do it alone. It must have a live man to watch over it. I suppose the garden of Eden itself would have soon run down without Adam to take care of it.

Now, reader, what is *your* plan for a garden in the spring of 1890? Friend Mills has a very pretty greenhouse, just back of the seed-house, near the fence. If you haven't any other occupation to take up your spare time, I think you will enjoy just a little bit of a greenhouse—say as large as you can afford; and then I am sure that you will enjoy your garden outside a great deal more if you carefully go over it, and plan it during winter evenings. Lay off your ground on paper; decide just how much of every thing you can dispose of safely; estimate how much ground it will take to grow it; figure closely how many seeds will be needed, and have every thing in readiness to go at it



SEED-HOUSE AND GROUNDS BELONGING TO F. B. MILLS, THORN HILL, N. Y.

couple of hundred miles to see a garden just like that in reality. It is very pretty, and it is worth a good deal of hard work to be able to produce any thing so handsome. We do not notice any weeds, neither are there any crops past their prime, waiting to be cleared up, nor any appearance of rubbish, heaps of weeds, brush, briars, cabbage-leaves, turnip-tops, nor any thing of the sort. The engraver has usually an advantage over the photographer in this line of work. The camera takes every thing true to nature—rubbish and all, while the engraver can omit the objectionable features. Near Arlington I saw some gardens pretty nearly as perfect as the above; and in California I saw orange-groves that were handsomer, more symmetrical, and neater, than any picture ever put in any catalogue. In portions of California, however, there were many very sad-

when the weather permits. Friend Mills has not got his pretty garden laid out in long rows, so as to be worked by horse power. If the seed-garden is purposely planned to raise *seeds*, perhaps he will not use a cultivator very much, although I think it would pay, unless the land is pretty expensive. Most of his crop could be put in rows, so as to be cultivated with the help of a small horse, almost as well as in beds, as he has it. By the way, we recently purchased a pony, small in size, with very small feet, with the view of training him to draw a small cultivator in very narrow rows. His feet are so small that he would not damage a Wakefield cabbage, even if he should step on it. Blue Eyes stipulates, however, that he is to be used for cultivating the garden, only when she does not need him to ride horseback. So you see there is



a prospect that "Billy" will serve in two different capacities at the Home of the Honey-bees.

## MYSELF AND MY NEIGHBORS.

But Jesus called them [the disciples] unto him, and said, Ye know that the princes of the gentiles exercise dominion over them, and that they that are great exercise authority upon them; but it shall not be so among you.—MATT. 20 : 25, 26.

Most of you will remember that these words were spoken to the disciples just after two of them had been begging for the highest places. It has been my theme at least once before; but to-day I wish specially to call attention to the last clause of the text—"But it shall not be so among you," meaning that we who follow Christ must not—*shall* not, exercise dominion or authority upon others. If we happen to be blessed with wealth and authority, if we be Christ's followers we must be very careful indeed how we exercise that authority. There is to be no "lording" over his fellows, with the true Christian. I hardly need say what it is we are to do, for that has been my theme so often—"Not to be ministered unto, but to minister."

Just now, during the close of the 19th century, there has been considerable stir, a good deal of talk, and much has been written in regard to this standing evil (and I do consider it a standing evil), of permitting a few to domineer and to dictate, and even be harsh and cruel to those round about them, just because they happen to be in a place of authority—very often because they happen to have *money*, while those who wait upon them do not. Statesmen, and those versed in political economy, are discussing the matter, and suggesting remedies. The laboring classes are also discussing the matter; and instead of *suggesting* remedies they have been organizing strikes, in order that they may *dictate* and exercise *dominion* over the *capitalists*. I am not going to say here who is right or who is wrong. I think I will, however, finally say that, in some respects, I am glad there have been strikes. I do not mean by this, however, that the strikes are right, any more than I mean that the men who control the money have always been right, for there has been a wrong and a transgression on both sides. Some of you may take me up for using the words "has been." I say so, because I believe a better way is now coming to the surface; and, if I am correct, these better ways are now in vogue, in adjusting differences, to a greater or lesser extent. May God hasten the time when all such differences shall be adjusted in a *Christianlike* way, and when no one, no matter what his position, or how great his wealth, shall so far forget himself as to begin to dictate and domineer over his daily comrades! With this preface I propose to come down to our "homes," or, if you choose, to "ourselves and our neighbors." Are we, friends, guilty?

While at Lansing, Mich., I was greatly interested in another convention, or institute, as well as the bee-keepers' convention.

It was a convention of the *schoolteachers* of the State of Michigan. I should say there were a thousand or more gathered at that one institute. Now, even though I *am* president of the school-board of Medina, I have not yet had time in my busy life to find out whether the State of Ohio holds a similar convention or not. I trust it does; and I hope, too, that the young men and young women whose task it is to teach Ohio's children will compare favorably with the bright, keen, healthy, and (judging from their looks) pure-minded boys and girls, or, perhaps I should say, gentlemen and ladies, who met at Lansing. I was enabled to see more of them, because, like the bee-keepers, they had obtained special rates at the Hudson House. There were so many schoolteachers and bee-keepers that the hotel was literally packed. Some of us were nearly if not quite an hour in getting our dinner, and the house was full—waiting-rooms, halls, stairways—schoolteachers everywhere. Mrs. Chaddock said, "GLEANINGS is a humanity paper." Its editors are, therefore, *humanity* men; and at least one of them is greatly given to the *study* of humanity. I do not like to be called an eaves-dropper, but I have for years been in the habit of listening to the talk going on round about me, when traveling, that I may study, weigh, and measure humanity as we find it. At the Hudson House there was a constant buzz of talk. The teachers kept it up at the tables, and I am glad that they did. And, oh how I loved to hear them talk! Of course, they used "good grammar." Many of them were young, and had not yet acquired a good command of language; but their words were well used and carefully chosen; and, judging from their talk, the themes that filled their hearts were, oh so good and pure! Boys and girls were mixed up together; but there was no senseless flattery, nor any thing approaching flirtation going on. They seemed to be a steady, sober-minded class who felt the weight of the responsibility resting upon them—the responsibility of training and caring for the children of the State of Michigan. They were not *dull* nor *stupid*. There was lots of fun going on, but it was pure, honest fun—fun that did not wound the feelings, nor reflect on anybody. The tables were crowded, and many of the friends had to wait a long while before they were served; but I did not hear one word of ungentlemanly or unladylike reflection from any of the *teachers*.

In putting up at first-class hotels I meet a certain class of individuals, to a greater or lesser extent, whom I have not yet learned to classify. I almost always meet them. They are not sociable; in fact, they never see anybody at the table except the waiter. The waiter is, however, given pretty soon to understand that they are at home at the table of a hotel. I have sometimes thought they got waited on *first*. I do not exactly know how they manage it, either. Perhaps the waiters have learned to fear their displeasure. The first word you hear from them is fault-finding with the waiter on account of what is brought to them. Then the waiter is *ordered* to take the objectiona-

ble thing right back and bring something better. The command is often given in such a tone that it makes my blood boil. If the waiter is a *colored* man, he does not seem to mind it very much. Sometimes he bows very low, and begs pardon. At many of our hotels, however, they use American women instead of colored men. I say *American women*, because I have felt, a good many times, as if the great traveling public need to be reminded that not only do the voters in this *land of liberty* merit a certain degree of respect, but it seems to me that the women of our land, especially intelligent, ladylike women, also deserve a kind of respect that they do not always receive—especially if they happen to be waiters in a hotel. Well, at this crowded table sat one of these individuals I have been trying to describe. A whole tableful of teachers and bee-keepers were waiting to be served. There were not waiters enough in the establishment. Every one could see that. The waiters at the Hudson House are all women. So far as I could see, they were intelligent and ladylike women. They were dressed neatly, and behaved themselves, for all I could see, as well as the ladylike schoolma'ams. Some of them, doubtless, lacked education, but they were doing their level best. When I took my place at the table, this man of wealth and authority (I simply guessed he was) was being served. The overworked young woman had been helping us to our food for a good hour, about as fast as it is possible for even an expert to move. As she gave this individual his coffee, she hurriedly passed him the sugar-bowl, containing snowy lumps of loaf sugar. The bowl was only about a quarter full; but as it contained a good dozen or more cubes of sugar, there was ample for all his needs, and for all those near him. His lordship, however, evidently was not in the habit of having things that way.

"Here!" said he, in a lordly way, as if speaking to a disobedient child, "take this sugar-bowl and fill it up."

Her hands were filled with different articles of food for others at the table. Her face colored up at the rude and uncalled-for command, but only for a moment. She set her heavy load down, took the sugar-bowl to a table at some distance, filled it heaping full, and put it down near him. Slowly her face resumed its wonted pleasant look, and she soon apparently forgot the blow. I say *blow*, for it *was* a blow. My fingers fairly itched to get hold of that piece of lath which I used when I made old Charlie do his duty. I suppose it is wicked; but every time I think of it, it seems as if I should like to give a good sum of money for the privilege of making that man smart for his needless cruelty. I know, dear friends, that it would not have mended matters at all. I know that it is not by *might* nor by *power* that these brutal men are to be made humble and kind. It can be done *only* by the *spirit* of Christ Jesus. And, oh how I do pray that I may hunger *more* after that spirit, especially if it is ever my lot to deal or plead with such as he! If *anybody* has learned that a *blow for a blow* is not the way

to make men better, I am surely that one. As I was late at the table there was no particular need of hurrying *my* meal; for by the time I was through, nearly every one else was through also. Not only men were waiting at the entrance of the dining-room, but many lady teachers were also waiting; great numbers of schoolma'ams, fresh from their charges, and perhaps from country schools. May God bless the teachers of our rural districts! Well, this waiter I have just been speaking of, noticed, as soon as I did, four pleasant-looking women waiting for a place. They had, perhaps, waited longer, as they perhaps preferred to sit together where they could chat and feel a little more at home. Pretty soon four men got up, right across the table from me, and in a twinkling my heroine (I call her so because I can not think of any better word, and because she met the rude speech from that overbearing man in such a *heroic* way), with a pretty feminine wave of the hand, motioned these young teachers to come quickly before somebody else crowded in. They caught her invitation, and came quickly.

And now I want to tell you of something that did my heart good. Writers of love-stories have sometimes tried to tell you of the power of a woman's smile. None of them yet, however, have ever done it half justice, to my notion. A woman's smile may start a man heavenward, and keep him *going* until he gets there. Wait a little. I wish to mend my statement. A woman's smile may start a *woman* heavenward, and keep *her* going until she gets there. As these teachers came up, each one of them gave this patient, hard-worked *sister* one of the sweetest smiles I ever saw in my life; and I inwardly thanked God to see them do it. I thanked God that it was given to one of *their own sex*, and not to one of the other sex, as the dime novels would invariably have it. And, oh I do rejoice to think that the day is coming when *women* will try harder to encourage *women*! when they will try harder to use the gifts that God has given them, to make *other* women in humbler stations feel that they recognize them as *sisters*. I thought this waiter seemed a little bit surprised to get these smiles and thanks; but, oh how they did transform her! She was a pleasant-looking, handsome girl before; but now she was *beautiful*. I gladly excused her from waiting on me while she went here and there giving these four teachers the very best dinner the house afforded. And they did not forget her while she waited on them. They thanked her as each article was brought, and even chatted with her as if she were one of the band of teachers too. And, dear friends, who shall say that she who ministers to us, even in a great hotel, if you choose, and supplies us with our daily food, is one whit lower in station in life than the educated college graduate who teaches our children? I believe the great wide world is not so much in the habit *now* of looking down upon table-waiters as it used to be. We used to hear the words, "Only a waiter at a hotel;" but I have not heard it very much of late. And I have



oftentimes been pained to be obliged to feel that *women*, more than *men*, perhaps, were in the habit of looking down upon the hotel girls and the hotel waiters. I have sometimes watched to see some of our fine well-bred ladies look up to the waiting-girl and thank her, or give her a pleasant smile when she came into the dining-room. I know there are at least some among our leading spirits of the W. C. T. U. who are in the habit of doing this; but the number is far too few. Now, dear friends, both men and women—yes, both boys and girls—you who read these pages, will you not help me to bring about a reform in this direction? I know there is such a thing as making, occasionally, a foolish and ignorant girl feel "set up" because she is noticed. I know, too, there are some of the waiters who have put *themselves* away down in the scale of society; but, never mind, dear brother and sister; it will not hurt us, even if we do get hold of the wrong one occasionally.

Our pastor told a little story of a great general, who, after a battle, started out with a tin cup and pail of water. He said that, even if he were not a surgeon, he could give a wounded man a drink of cool water. Finally, as he was preparing to give some water to a poor fellow who belonged to the enemy, the man managed to muster up strength enough to pull out a revolver and try to shoot the general. He missed his aim, however, and the attending officer was going to make short work of him for his audacity in trying to shoot him who was offering him a drink.

"No, no!" said the general to the officer; "don't shoot him, but give him a drink of water." This illustrates the spirit we need. Don't mind ingratitude. Keep on giving the cups of cold water, even to those who have attempted to take your life; and a cup of cool water is oftentimes a pleasant word and look to the one who waits on you.

Perhaps some of you will say, "Why not give it to the *colored* brothers, or waiters, as well as to the American women?"

By all means, do so. I can tell you, however (as I have learned by experience), that you are quite likely to encourage them in begging for a quarter or even a dime. But, don't be troubled, even if they do, and don't give them the quarter or the dime either.

A day or two ago there came some variously shaped cards through the mails. They were to advertise one of our horticultural publications. Now, I hope the brother who has charge of the advertising department of this periodical will excuse me if I take him to task a little. The first one (on a "diamond" shaped card) reads, "If you want to get rich and wear *diamonds*, advertise in the ———." The next one (on a "club" shaped card) reads, "If you want to *beat* your rivals, and get on top, advertise in the ———." And the third one (on a "spades" card) reads, "If you would *bury* your competitors, advertise in the ———."

I presume the above was sent out for fun, as a piece of pleasantry, and may be I am doing wrong to find fault with it; but I am afraid there is too much truth in it. I am afraid there *are* boys and girls both, who

crave riches and diamonds, that they may make a display over their less fortunate brothers. And I am afraid, too, that there are those in business who really wish to *beat* a competitor and "get on top," as the card expresses it. Now, dear friends, and I want to speak to the younger ones too, is it true that you want to get on top of your rivals? Where would they be? Down in the mud? And would you, that you might get a little higher, sink them *deeper* and *deeper*? Wouldn't *their* anguish disturb you at all? May God forbid that any such spirit should ever find a lodging-place in any *American*, either *man* or *woman*. And, finally, does any one wish to see his competitor *buried*? I sometimes get into a strife myself, and I am very anxious to come out ahead; but may the Lord help me that I may have enough of the Christ spirit in my heart—enough Christian sympathy, so I can never have *any* peace or pleasure while my rival is *suffering* because of misfortune, or even because he makes mistakes and blunders which I have been enabled to avoid. Oh let us hold fast to the words of the Master! Let us hang them about our necks. Let them take the place of the diamonds that wealth can give. And may we have no comfort nor enjoyment in exercising *dominion* or *authority* over those whom God has seen *fit* to place round about us.

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## TOBACCO COLUMN.

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FROM THE OTHER SIDE OF THE FENCE.

FRIEND ROOT:—I admire your Tobacco Column; but our friend in a recent issue says he is glad there will be no tobacco smoke in heaven. Do you think tobacco smoke will keep us out? Our friend intimates he would not use it. Is there any thing in the ten commandments forbidding it? Our Savior said, "He that is without sin among you, let him cast the first stone." Finally, would it not be as well to show a little more charity, one with another, and not so much of the Pharisee's "God, I thank thee that I am not as other men are"?

S. R. AUSTIN.

Amityville, Long Island, Jan. 19, 1890.

Friend A., there have been several criticisms in regard to that one letter in the Tobacco Column you allude to. I felt a little sorry after it came out, that it was allowed to pass. Still, a good many people think it was none too severe. Suppose we put it this way: Tobacco smoke is exceedingly offensive to me; and when I am outdoors on the sidewalk, and somebody just ahead of me turns his head and puffs a great lot of foul smoke in such a way that I can hardly get out of it, I can not well help feeling indignant; and if others feel as I do, can we really blame them for longing for some place where, at least in the open air, we can have a little respite from such treatment? To such people, the hope, at least, of the joys of heaven will be in having perfect immunity from such smells or such treatment. Now, it may seem hard, and perhaps uncharitable, but I really can not believe that people who have so little regard for the feelings of others as to push

their offensive habits under our very noses will be tolerated in heaven. I know we all have our besetting sins. None of us are free from them; but after that besetting sin has been held up to us, and we still persist in annoying and persecuting our fellows, we can not be followers of Christ unless we repent and reform. Perhaps we have been guilty of showing a Pharisaical spirit, and we thank you for so kindly giving us a caution; and whether you use tobacco or not, my good brother, here is my hand in Christian fellowship and charity. I am glad to know that you admire the Tobacco Column as a whole.

## GLEANINGS IN BEE CULTURE.

*Published Semi-Monthly.*

A. I. ROOT,  
EDITOR AND PUBLISHER,  
MEDINA, OHIO.

TERMS: \$1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, FEB. 1, 1890.

When HE giveth quietness, who then can make trouble?—  
JOB 34: 29.

We have to-day 9404 subscribers.

### A MISTAKE IN A NAME.

THE celery described in our last, under the name of Incomparable Crimson, was, by a blunder of A. I. Root, the New Rose; that is, I described the New Rose, and by mistake got the wrong name for it.

### BEE-STINGS FOR RHEUMATISM—APIUM VIRUS.

WE are pleased to notice that the *Homeopathic Recorder* for November 15 copies four of the most positive testimonials that have appeared in our pages. I should be exceedingly glad to know with what confidence our medical brethren regard the reports we have been giving.

ON page 92 friend Morrison alludes to a letter sent us, describing candy for queen-cages, made by boiling the sugar and honey together. We can not find that any such letter ever reached us, or that we ever succeeded in combining sugar and honey in that way. We have written to friend M. to explain more fully, for we regard it as something quite important.

### MORE ABOUT THE HONEY FROM PINE-TREES.

SEVERAL communications have been sent us, not only in regard to bees working on the pines of Virginia in the vicinity of Amherst and Danville, but reports are given of as high as 3000 lbs. from a single apiary, of the thickest, whitest, and best-flavored honey ever taken. Careful observers give it as their opinion that it is not an insect secretion at all. M. C. Wayland, M. D., Rochelle, Va., can give further particulars.

### STRAWBERRIES IN JANUARY.

STRAWBERRIES have been for some days on the market in Cleveland, at 60 cents a qt. I am told that they came from Tennessee. The strawberries not

only blossomed earlier than they were ever known to before, but they bore fruit that got ripe and is now in market. At the present writing, Jan. 27, we have had five days of fair wintry weather. At one time it was as cold as 5 degrees above zero; but today it is mild and muddy once more.

### SPRAYING TO PREVENT THE CODLIN MOTH.

ON my way home from the Michigan convention I found that one of our Michigan bee-keepers has over 100 acres of apple-trees. They have used the spraying-machines with remarkable success. During the past season the apples were all sprayed three times. The wagon that drew the liquid worked a force-pump. The result was, 3000 barrels of apples, almost without scar or blemish, that sold for \$4500 in the orchard. The New York firm that bought the apples furnished their own barrels.

### THE ROCHESTER CONVENTION.

NEXT in importance to the meetings of the N. A. B. K. A. are those of the New York State Bee-keepers' Association. This association was founded by Moses Quinby, and embraces within its ranks a very large number of our most prominent bee-keepers, some of whom enjoy world-wide reputation. Their next meeting will be held in Rochester, at the court-house, Feb. 5, 6, 7. Owing to the absence of A. I. Root in Wisconsin at the same date, he can not be present; but Ernest expects to be on hand, if the gripple lets go of him sufficiently. Under the head of Conventions we give their programme in full.

### THE GLASS SASH THAT DOES NOT NEED HANDLING.

THREE such sash are now over plant-beds, composed of strips of glass 2 inches wide and 18 inches long. The glass rests perfectly level. They kept the ground from freezing when it was 5 degrees above zero, and after a gentle rain last night the ground seems to be as thoroughly wetted as if no sash had been over it at all. During very severe weather, straw mats or wooden shutters can be placed over it as well as over common sash. We shall at once have more of them made and put in use. Perhaps I should add, that the bed is right over a single steam-pipe that runs under ground to our dwelling-house.

WE are having a large number of new names, but there are some few discontinuees. Allow us to remind the latter, that there are two or three matters of great moment that are just now being discussed, and that they had better remain with us, and get the benefit of it. The importance of thick top-bars, and the doing away with burr-combs and honey-boards, can not be overestimated. Having frames suitable for out-apiaries, for moving and shipping, is bound to come up this year, and we hope a solution of the problem may be reached. An initial article is already at hand on the subject—see page 99. Reversible and non-reversible extractors have been and are to be discussed this year.

### RAISING PLANTS FOR HONEY ALONE.

A LETTER is just at hand from a friend who wants enough Chapman honey-plants, figwort, and spider-plant to plant an acre of each; and he was feeling very badly at the prospect of not being able to find enough figwort to plant an acre. Of course, we told him that neither he nor anybody else wanted to do



any thing of the kind. The subject came up at the recent Michigan Convention, and I asked Prof. Cook whether, after the recent experiments made by the Agricultural College, of raising honey-plants by the acre, he would advise planting for honey alone. He replied at once that he would not. Now, friends, please do not waste any more money in this direction. If you want to raise honey-plants for your garden, a five-cent package is about all you need of any of them—at least, that is my opinion after having wasted a good deal of money in this direction. If the plant is also useful for some other purpose, that alters the case entirely.

#### WIRE STAPLES FOR FASTENING FRAMES AT FIXED DISTANCES.

The article and illustration on page 99 reminds me that, something like twenty years ago, all of the Langstroth hives made at the factory in Cleveland had wire staples in the frames, to keep them from getting too close together or to the ends or sides of the hive. We regarded this arrangement at the time as a wonderful invention; but, strange to tell, almost every bee-keeper, myself among the number, in a very short time went all over the hives, pulled out the staples, and threw them away. Our objection to them was, that they caught on the ends of the frame or sides of the hive when putting them in place and taking them out, causing bumps that irritated our hybrids, and set them to stinging when they might not have stung had it not been for the wire staples. Ernest suggests, however, at that time there were but few or no out-apiaries. This may make a difference, but I think it well to remind the boys of what their fathers did before some of them were born.

#### ANOTHER OF THE WORLD'S BENEFACTORS CALLED.

MR. E. N. ROOT, brother of our proof-reader, "W. P.," who so kindly took me around the city of New York when I visited Peter Henderson, gives us the sad intelligence of the death of the great florist and market-gardener. We give it in his own words, as follows:

Peter Henderson died of pneumonia to-day. May be A. I. R. would like to know it. He was 66. I saw him a few days ago, a big, kindly man, and he seemed to have strength to live 20 years yet. So they go! New York, Jan. 17. E N. R.

Perhaps no other one man who ever lived did more to make cultivating the soil popular than did Peter Henderson. His labor was not by any means given solely to building up the great business that takes his name, but it was out of a genuine love for his fellow-men. His books, "Gardening for Profit," "Gardening for Pleasure," etc., are written in such a happy, pleasant, good-natured style, that almost everybody becomes captivated by reading them; and thousands have, through his teachings, not only made tilling the soil profitable, but they have also found health, strength, and happiness, when doctors and medicines had proven to be utter failures. America can justly feel proud of the work he has done, and the whole world has doubtless been made better and happier because he lived and labored for us. Peace to his ashes.

#### LA GRIPPE.

THIS has taken serious hold of the friends in the office of the *American Bee Journal*. In the issue for Jan. 18, the following paragraph shows that the malady got a good "grip" on friend Newman and his office-helpers; but somehow or other the *Jour-*

*nal* comes out on time as usual, although its workers have been placed at a great disadvantage.

For several hours to-day the *Bee Journal* office was entirely deserted, and the door locked—one either another left his post of duty, being unable to longer keep a perpendicular attitude. But we are hopeful that the worst is now passed, and that all will be at their post of duty again soon.

A letter from our correspondent, G. M. Doolittle, informs us that he has been gradually coming down to being confined to the house, for six weeks, on account of influenza and a catarrhal affection. Bro. Doolittle says he was three days in writing his usual article which appears in this issue, on the subject of wintering. The grippe has not thus far made a very serious inroad in our office, and we are in hopes that we may escape it. A number of our employes in the manufacturing and packing departments, however, have not been so fortunate.

P. S.—Shortly after Ernest dictated the above, he was taken suddenly, while in the office. As nearly as I can make out, the "grim giant" took his first "grip" on him by the back of the neck. It soon doubled him up over the steam-pipes, and in an hour or two more he was at home in bed. During all his early years his dread malady was earache; but when I went over to see him, he said that, if he had the choice, he would take earache. After suffering keenly about 24 hours he sent for the family physician. You know the Root family do not believe in sending for physicians for every trifling malady; but I wish to bear record, that the doctor gave him relief almost immediately; and, by the way, with the large experience most of our physicians have had in its treatment, I think they ought to be able now to say just what should or should not be done. Your old friend A. I. R. has not had a touch of it yet; but if it comes, he proposes to send for the doctor, and do exactly as that doctor says.

## SPECIAL NOTICES.

With the view of determining the established price of Japanese buckwheat, I would ask all those having it for sale to say how much they have, and how much they will take for it. We may not be able to purchase, as we are already pretty heavily stocked; but when we know how much there is, we can advise better what price is best to put on it. By consulting the seed catalogues you will see they have fixed it at from \$1.50 to \$2.00 per bushel, *retail*.

#### REMINGTON TYPE-WRITER FOR SALE.

For the sake of uniformity in our office we have adopted the Remington No. 2 type-writer, and consequently have a No. 1 of that make for sale. It has been in use here for a number of years, and does very good work. It prints capitals only, 70 letters to the line. It has a hinged metallic cover. Specimens of the work done on it will be sent on application. We offer it for \$30.00, packed ready for shipment. This includes a nice stand with hinged leaf, one drawer. It has figures, points, etc.

#### SECOND-HAND FOUNDATION-MILLS.

We have the following second-hand foundation-machines to offer. They are not, of course, as good as new machines; but for those who make their own foundation, they will answer nicely.

One 10-inch foundation-mill at Mt. Vernon, Iowa; has been used some, but is in good condition. Will sell for \$15.00.

One 6 inch foundation-mill here. This is one of the original mills made by Mr. Washburn, and is in good condition. It has a heavy wall, and is better adapted to making brood foundation than any other grade. Will sell for \$9.00.

## GRAND RAPIDS LETTUCE-SEED WANTED.

Tell us how much you have, and what you will take for it.

## TIN COVERS, 5 CTS. PER HIVE EXTRA.

Owing to the advance in price of tin plate, and also an advance in the cost of pine lumber, we can not agree to furnish tin on the covers of Simplicity or Dovetailed hives at the regular price, instead of sending a clear board for cover, as we have sometimes done. But for 5 cts. extra for each cover, we will include a sheet of tin. The following paragraph is inserted in our catalogue, page 19, just before the list of 10-crates.

*There is no tin on the covers in ten crates No. 1, 2, 3, 4, and 5. Ten crates No. 10, 20, 30, 40, and 50 are just the same except that they have tin on all the covers, and the price is 5c. extra each cover, or \$4.75 for No. 10, \$5.50 for No. 20, \$6 for No. 30, \$7 each for Nos. 40 & 50.*

## THICK TOP-BAR FRAMES.

A number of readers have asked if these frames can be used in our regular hives without lowering the rabbet to make room for the extra thickness of the top-bar. To be sure, they can. The end of the top bar is rabbeted out thus: This forms a shoulder on to which the end-bar is nailed, and also reduces the thickness of the projecting ends to the regular thickness,  $\frac{1}{8}$  of an inch.

## JOB LOT OF WIRE CLOTH.

We call the attention of those interested, to our list of green and black wire cloth in our advertising columns. The list has not been published since last May. Within the past few days we have added over a ton more to the lot, so that we now have a full assortment of widths. As we have by far the largest proportion of 26 inch width, we have decided to offer this in full rolls of 216 $\frac{3}{4}$  sq. feet, at \$3.50 per roll, instead of \$3.80, the regular price. This will be an inducement for you to take this width, if you can use it as well as any other.

## HENDERSON'S BUSH LIMA BEAN.

There seems to be quite a division of opinion in regard to the value of this for a garden vegetable; but altogether I think it will be planted quite extensively, notwithstanding the price asked by nearly all the seedsmen; namely, \$1.50 per quart. You will notice, also, there is a difference of opinion among the seedsmen. Our friend Maule styles it the greatest achievement of the century, in gardening. Our price, postpaid, is \$1.15 per quart; but although we have several bushels it may be well to order soon, if you want them at the above price.

## WORLD TYPE-WRITERS AT THE OLD PRICE.

Since the World type-writer was taken by the present management, and the price advanced 25 per cent, and the exclusive sale given to agents, we have not sold very many. Desiring to close out the few we have on hand, we offer them at the old price; namely, \$8.00 for single case, or those writing all capitals, or \$12 for double case, or those writing both capitals and small letters. As we have only a few on hand, and as we shall not be able to get any more by offering at above prices, you must be prompt in ordering if you would secure one.

## MORRISON'S CANDY FOR QUEEN-CAGES.

Just as we go to press we get the following from friend Morrison in regard to the queen-cage candy mentioned on page 110. As it seems to be something of much value, we give it a place here. It will also prove equally valuable for bee-candy for winter feeding.

To make candy for queen-cages, I take the best extracted honey I can get (I have usually used apple-blossom) to our confectioner, and tell him to make it up into "cream candy" by boiling with sugar, using not a particle of glucose or water, and to be particular to avoid the least scorching in the work. If the candy should be too stiff, a little honey can be kneaded into it; if too thin, work in a little pulverized sugar. I can provision cages with this candy now for all the coming summer's use, and in the cages so prepared now, I can successfully send queens on journeys of 14 to 20 days, next September. I do not think it will be well for novices to attempt to make it, but rather to give these directions to an experienced manufacturer, and pay him for what he has taken many days to learn. Before putting the candy into my cages I pour into the space boiling wax, and immediately pour it out again, leaving the wood nicely covered. I have made my candy as above for three years past.

S. W. MORRISON.

Oxford, Pa., Jan. 26.

## NOVELTIES TESTED BY US IN 1889, AND PRONOUNCED WORTHY OF A PLACE IN OUR 1890 CATALOGUE.

We have added to our catalogue of seeds for 1890 the following vegetables as worthy of a place:

Henderson's New Bush Lima Bean.  
Fottler's Brunswick Cabbage.  
New Rose Celery.  
Emerald Gem Melon.  
White Victoria Onion.  
Early Puritan Potato.  
Early Sugar Pumpkin.  
Chinese Rose Winter Radish.  
Giant Summer Crookneck Squash.  
Ignotum Tomato.  
Lorillard Tomato.  
Peach Tomato.

These were all described in our condensed catalogue, given in our last issue, except the following, which we describe here:

*Emerald Gem Melon.*—This is a small one, say from 1 $\frac{1}{2}$  to 2 lbs. The skin is of a deep emerald green, and the flesh is of a salmon color—very delicious. My way is to eat it with a spoon, scraping the melon clear down to the rind. Of course, they want to be well ripened. I believe I should call it the most delicious of all muskmelons. Price 10c per oz.; \$1.50 per pound.

*White Victoria Onion.*—In my description in our last, I omitted to say that this onion, besides being valuable for bunch onions, when given room and proper culture grows to an immense size. Single specimens last season reached the enormous size of 4 pounds. One-fourth ounce, 20c; oz., 65c; lb. \$8.00.

*Giant Summer Crookneck Squash.*—This squash is as early as the ordinary crooknecks, and in every way equal; but are of such size that one squash will make a dinner, even when soft and tender; and one good thrifty plant will almost supply a family. Ounce, 15c; pound, \$1.75.

*Peach Tomato.*—These are quite early, look nice (can hardly be told from peaches), and sell well when put into new quart strawberry-boxes. We sold them last season at 5 cts. per quart. They never rot, and in quality are excelled by none. Small size is their only fault. Oz. 25c; lb. \$3.00.

Of course, the above are also all sold in 5c pkgs.

## BEES. South Florida. QUEENS.

Eight years' experience. I am better prepared than ever before to fill orders promptly, and guarantee satisfaction and safe arrival. Tested Italian queens, \$1.50; untested, 75c, or \$8.00 per dozen. I make a specialty of shipping in time for Northern fruit-bloom, four-frame (L. and S. wired) nuclei, full of bees and hatching brood, with queen, at \$4.00. Ready to mail or ship, as climate permits.

3tfdb LUTHER W. GRAY, Orlando, Fla.

In responding to this advertisement mention GLEANINGS.

## QUEENS! EARLY! QUEENS!

Italian queens promptly shipped after April 1st.  
April 1 to June 1. After June 1.

Tested queens .....	\$2 00.....	\$1 75
Untested .....	1 00.....	90
Three Untested .....	2 75.....	2 60

Two-frame Nucleus with Untested Queens after April 1st, \$2.50. We use the Simp. frame and guarantee safe arrival, etc. Circulars free. Make money orders payable at Clifton. Address 3d

COLWICK & COLWICK, Norse, Bosque Co., Texas.

In responding to this advertisement mention GLEANINGS.

## FOR SALE.—Bottom For Cash. See Exchange

Column. H. L. GRAHAM,  
34d LETTS, LOUISA CO., IOWA.

## ALSIKE CLOVER.

The time for sowing alsike seed is nearing. It is usually sown in the latter part of February and during March. We have a large stock of very nice seed, which we offer as follows: 18 cts. per lb.; by mail, 9 cts. extra; \$2.00 per peck; \$3.90 per  $\frac{1}{2}$  bushel; \$7.50 per bushel. In lots of 5 bushels or more, \$7.00 per bushel. Bags are included in every case.

A. I. ROOT, Medina, O.



## \$1.50 REVERSIBLE 8-FRAME LANCSTROTH HIVE.

J. B. WILCOX, - - MANISTEE, MICH.

### Wants or Exchange Department.

This department is designed primarily to cover questions either not already answered in the A B C of Bee Culture (price in cloth \$1.25), or, if incorporated in this work, are here dwelt upon more in detail on account of the importance of the question. While these answers are of vital interest to the A B C scholars, they will doubtless be found, in many instances, to be of considerable value to the more advanced student. For lack of space, the question itself, instead of being directly stated, is omitted, the same being implied in the answer. It is hoped that the class will first consult their text-book before sending in their questions.

**WANTED.**—To exchange a Winchester rifle, repeater, shoots 22 long; shoots 23 times, for a second-hand foot-power Barnes saw, for hive-making.  
J. W. CROSEY,  
Layland, Coshocton Co., O.

**WANTED.**—To correspond with some one who would like to spend a season in a Colorado apiary.  
D. L. TRACY,  
3d Alsike Apiary, Longmont, Boulder Co., Colo.

**WANTED.**—To exchange for land or stock merchandise, a first-class apiary, 175 colonies. No better location. Crop, past season, 18,000 lbs. Bees need not be moved. Every thing complete, ready for business. Found-machines, 4-horse-power, etc. Good trade direct with consumers. Give particulars for particulars.  
H. L. GRAHAM,  
3-45d Letts, Louisa Co., Ia.

**WANTED.**—To exchange for comb or strained honey of good quality, one feed-grinder worth \$25 00. Can be operated by an ordinary wind-mill, and warranted to do good work. Address  
AMERICAN CARP CULTURE, Alliance, O.

**WANTED.**—To exchange pedigreed Poland China pigs, for Italian bees, to be delivered in the spring.  
N. A. KNAPP,  
3d Rochester, Lorain Co., O.

**WANTED.**—Situation with some supply-dealer, apiarist, or honey-merchant, by an experienced apiarist.  
J. B. HENDERSON,  
3d Roney's Point, Ohio Co., W. Va.

**WANTED.**—Situation to take charge or work in an apiary in either of the following States: Tennessee, Virginia, Arkansas, Texas, Nebraska, Missouri. Understand the business in all its branches; also farming, or can do any kind of honorable work. Best of references given; 18 years with bees and farming. Address Box 25, Gallupville, N. Y.  
3d

**WANTED.**—To exchange 1000 new bee-hives, all complete, for bees, or will furnish hives, sections, and foundation for share of the honey, to parties living in Maryland, Virginia, or West Virginia. Write for particulars to  
F. DANZENBAKER,  
3tfdb 1301 K. St., N. W., Washington, D. C.

**WANTED.**—To exchange at a bargain, 40 or 80 acres of timber land, for bees.  
3d J. L. COLE, Carlton Center, Barry Co., Mich.

**WANTED.**—Situation. Over ten years' experience with bees; also practical canponizer. Correspondence solicited.  
R. R. CUYLER,  
3-d Rapidan, Culpeper Co., Va.

**WANTED.**—To exchange a 3-horse-power engine and boiler, for type-writer, or offers.  
3 d W. S. WRIGHT, Battle Creek, Mich.

**WANTED.**—To exchange raspberry and strawberry plants, standard varieties, for extracted honey.  
3d L. S. ROGERS, Bowling Green, O.

**WANTED.**—To exchange bees in S. hive, or by the pound, for amateur photograph outfit, turning-lathe, blacksmith's drill, gent's saddle, or offers.  
P. W. STEVENS,  
3-4d Moore's Hill, Dearborn Co., Ind.

**WANTED.**—To exchange a new Daisy incubator, capacity 300 eggs, for fdn. mill, sections, or offers.  
W. M. J. VALENTINE,  
3-d Hagerstown, Washington Co., Md.

**WANTED.**—To exchange bees for supplies; also to rent or let an apiary, location good. If not let by March 1, I want a man for 1890.  
A. E. WOODWARD,  
3-4d Grooms Corners, Sar. Co., N. Y.

**WANTED.**—To exchange bees and queens, for Barnes saw, Novice extractor, honey-knife, and Excelsior printing-press with 5½x9½-in. chase.  
3-11d S. A. SHUCK, Liverpool, Ills.

**WANTED.**—Bee-help for 1890. One man with experience, and two desiring to learn the practical part of apiculture. Must be strictly temperate. State wages expected, and other particulars.  
3 6db S. I. FREEBORN, Ithaca, Wis.

**WANTED.**—To exchange for honey, photograph outfit, musical instruments, guns, etc., one 240 egg self-regulating, one 50-egg non-regulating incubator; one Monarch brooder, 200 chicks; one brooder, 50 chicks. A bargain for some one.  
3d J. T. FLETCHER, Clarion, Pa.

**WANTED.**—To exchange Gregg, Souhegan, Early Ohio, and Tyler raspberry-plants, Warfield, Bubach, Jessie, May King, and Hoffman strawberry-plants, A No. 1 plants, and true to name, for sections, honey, beeswax, or pear-trees. Satisfaction guaranteed.  
E. T. FLANAGAN, Belleville, Ills.  
3-5-7-d

**WANTED.**—To exchange a few trios of White Wyandottes and Plymouth Rocks, for foundation and 1-lb. sections. These are very fine stock.  
2tfdb T. G. ASHMEAD, Williamson, N. Y.

**WANTED.**—To exchange honey for beeswax. We will take beeswax in exchange for honey in any quantity. Will give three pounds for one. Write for particulars.  
CHAS. DADANT & SON,  
18tfdb Hamilton, Hancock Co., Ill.

**WANTED.**—To exchange all kinds of wall paper, for honey.  
J. S. SCOVEN, Kokomo, Ind.

**WANTED.**—To exchange 200 colonies of bees, in S. hives, for any thing useful on plantation.  
1tfdb ANTHONY OPP, Helena, Ark.

**WANTED.**—To exchange young Italian queens for 1-lb sections or foundation-mill. Queens ready to ship now, by first mail. I guarantee satisfaction.  
J. W. TAYLOR,  
2 3-4 Ozan, Hempstead Co., Ark.

**WANTED.**—By an experienced apiarist, a large apiary on shares; or would purchase, if little cash is required down. Address G., Box 226.  
Williamson, N. Y.

**WANTED.**—To correspond with parties having potatoes, apples, onions, cabbage, or honey, to sell or consign. All letters promptly answered.  
EARLE CLICKENGER,  
2-3d No. 119 South Fourth St., Columbus, O.

**WANTED!!!** I want a man to take charge of an apiary.  
F. D. LACY,  
2-5db Nirvana, Lake Co., Mich.

**WANTED.**—Situation with bee-man, by a young man 25 years of age, four years' experience.  
2d H. DEXTER, Preston, Grant Co., Wis.

**WANTED.**—To exchange Turner red-raspberry plants for strawberry-plants, peach-trees, or bee-supplies.  
EARLE CLICKENGER,  
2-3d No. 119 South Fourth St., Columbus, O.

**WANTED.**—To exchange 100 cherry trees for 20 warranted queens or 4000 dovetailed sections.  
2 3d JAS. HALLENBECK,  
Altamont, Albany Co., N. Y.

**WANTED.**—To exchange choice Italian queens, Stanley Automatic Honey-Extractor, large size (new), Heddon hives, or full colonies of Italian bees, for a combined Barnes foot-power saw.  
2tfdb E. D. KEENEY,  
Arcade, Wyoming Co., N. Y.

**LIVINGSTON'S CATALOGUE FOR 1890**  
**7 TOMATOES**  
 Our 1890 Catalogue is BETTER THAN EVER. A complete Garden Guide, full of practical ideas about all kinds of **SEEDS**  
 Vegetables, Flowers, Bulbs, etc., necessary for the garden is mailed FREE to all who apply if they mention this paper. With prices lower, quality higher, better facilities for filling orders promptly, generous treatment and over 40 years Seed Farm experience enables us to please you.  
**A. W. LIVINGSTON'S SONS, Box 273, COLUMBUS, O.**

☞ In responding to this advertisement mention GLEANINGS.

**SOLD IN 1889, AND**  
 ready to sell in 1890, all kinds of Bee-keepers' Supplies, Bees, Queens, etc. Send your address and receive our circular.  
**JNO. NEBEL & SON, High Hill, Mo.**

☞ In responding to this advertisement mention GLEANINGS.



## The Public Want

Their seed fresh and true.

Would they not be most likely to obtain such by buying **directly from the grower?** I can buy seed at half what it costs me to raise it, but could not sleep sound should I warrant seed of this class. For the same reason I make special effort to procure seed stock directly from their originators. You will find in my new seed catalogue for 1890 (sent free) the usual extensive collection (with the prices of some kinds lower than last season) and the really new vegetables of good promise. You should be able to get from me, their introducer, good seed of Cory Corn, Miller Melon, Hubbard Squash, All Seasons and Deep Head Cabbages and many other valuable vegetables, which I have introduced.  
**JAMES J. H. GREGORY, Marblehead, Mass.**

☞ In responding to this advertisement mention GLEANINGS.

## RERUM COGNOSCERE CAUSAS,

To know the Causes of Things, is the key to Success in any industry. If you wish to succeed in the **Bee Business**, you must read and become acquainted with the most Successful Methods of Bee-Management and Honey-Production.

## LANGSTROTH'S WORK,

REVISED BY DADANT,

Contains the result of practical experience with Bees. It gives the Physiology of the Bee, with numerous Quotations from the latest Scientific Writers, the Description of the best Hives, Directions for the Proper Management and Handling of Bees; the most Practical Methods of Queen-Rearing, Swarming (Natural and Artificial), with controlling methods; instructions on Establishing Apiaries, Transferring, Shipping, Mailing, Feeding, Wintering; the best methods of producing Comb and Extracted Honey, the Handling and Harvesting of Honey, the Making of Comb Foundation, etc., etc.

The instructions for the Rendering of Bees-wax are alone worth the price of the Book, to many bee-keepers who waste a part of their wax in rendering it.

This book, "the most complete ever published," is shortly to be published in the French, Italian, and German Languages, by Practical European Apirists. It is highly recommended by all publishers of Bee-Literature in the Old World as well as in the New.

**Cloth Binding.** 550 Pages, 199 Engravings, 19 Full-Page Plates. Gilt front and back. This book is an Ornament to any Library.

**Price:** By Express, \$1.85. By mail, prepaid, \$2.00. Special prices to Dealers who wish to advertise it in their circulars.

☞ We also offer for Sale, 20,000 Lbs. of Honey, of our crop of 1889; 25 Tons of Comb Foundation, Smokers, Bee-Veils of Imported Material, etc. Send for Circular. Address

**CHAS. DADANT & SON, Hamilton, Hancock Co., Illinois.**

☞ In responding to this advertisement mention GLEANINGS.

## DON'T FAIL TO TRY THE "MIAMI,"

THE BEST LATE STRAWBERRY ON EARTH!

FINE LITHOGRAPH.

HONEST TESTIMONIALS.

ALSO OTHER VALUABLE VARIETIES, AND A

## CENERAL NURSERY STOCK

For sale. Send address for prices, description, etc.

**J. D. KRUSCHKE,**

**BOX 824, PIQUA, O.**

34d

☞ In responding to this advertisement mention GLEANINGS.

**SEEDS.** Six pkts. of my choicest Flower Seeds, 10c. Beautiful catalog free. **F. B. MILLS, Thorn Hill, N. Y.**

## SEEDS GARDEN, FLOWER & FIELD.

POTATOES, FRUIT TREES, PLANTS and VINES, all the best kinds.

THE NEW CURRENT "Grandall," a fruit specialty. Our Free Catalogue is a Novelty all should have, as it gives Accurate Descriptions and Fair Prices, instead of bombast and exaggeration—too common. Send your address on a postal for it at once. **FRANK FORD & SON, Ravenna, Ohio.**

☞ In responding to this advertisement mention GLEANINGS.

## Ho! Ye in Dixie Land!

LEARN SOMETHING NEW

Of Interest to You in my New 1890 Catalogue

Enlarged, and prices reduced. It gives LOW SPECIAL FREIGHT RATES to many Southern points, especially to points in TEXAS.

Southern Bee-Keepers, Send for it NOW.

**J. M. JENKINS, - Wetumpka, Ala.**

☞ In responding to this advertisement mention GLEANINGS.

## Sugar Grove Thoroughbred-Poultry Farm.

60 Ply. Rocks, Wyandottes, Langshans, Mottled Javas, and White Ply. Rock.

Cockerels, at \$1.50 Each.

A Few Ply. Rock and Wyandotte Pullets, 75c Each. Satisfaction Guaranteed.

**W. H. SWIGART, - Lee Co., - DIXON, ILL.**

☞ In responding to this advertisement mention GLEANINGS.

**SEND \$1.25 TO THOMAS GEDYE, Kangley, Ill.,** for a sample of his *All-Metal Separator*, or \$11.50 per 1000, and be convinced that they are the cheapest and best out. At present I have them for combined crates and T supers only. Supply-dealers, please send for prices on large quantities, cut or uncut.

1tfdb